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VOL. XV JUNE, 1932 No. 6

PUBLIC HEALTH ORGANIZATION AND THE MEDICAL PROFESSION*

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THE development of present day practice of public health and preventive medicine is a glorious achievement. The major credit for this must go to physicians both for the research results and for the application of the knowledge of disease prevention thus secured. There are, of course, notable exceptions. Pasteur was a chemist and many research workers who discovered facts in preventive medicine were not physicians, but almost without exception the men who have brought order out of chaos and who have developed health departments to their present state of efficiency have been physicians. Not only were doctors responsible for the major part of the discoveries, but it was the doctor acting as health officer who applied this new knowledge, and developed the system of wholesale preventive medicine which is the chief objective of health departments today.

All this development of preventive medicine was the work of doctors as individuals interested in the possibilities of preventive medicine. Collective action by medical societies for developing preventive medicine was conspicuously absent until the past decade. The overwhelming majority of practicing physicians up to recent times did not practice preventive medicine. This was not their fault. They had been taught to care for the sick and injured and preventive medicine was not taught in our medical schools to undergraduates in an effective manner until the present decade.

Since 1900 preventive medicine has made rapid progress in health departments due to the vigorous efforts of health officers. The great unofficial health agencies by educational propaganda have insisted on prevention and the development of facilities for prevention rather than cure.

During these past three decades the practicing physicians have held to what they considered their primary duty of treating the sick and injured. They have been reluctant to establish clinics for examination of apparently healthy people or to immunize or vaccinate against disease except upon individual request. It was natural, therefore, that both official and unofficial health agencies, in their enthusiasm, and in the absence of facilities for early diagnosis, should establish clinics and create in the public mind by education a demand for protection against contagious disease by immunization and for the discovery and early correction of disease and defects.

Unofficial agencies and the great foundations devoted large sums of money for preventive work, educational and otherwise, and official health departments secured large appropriations for the prevention of diphtheria, typhoid fever, tuberculosis and later venereal disease.

As a result, practicing physicians saw all kinds of clinics develop and expand which seemed to be taking their patients away from them. In the past forty years public health administration established both fixed and traveling clinics, conducted wholesale immunization campaigns and examinations for discovery of defects in school children. All of this is work that should be done by the practicing physician. The only excuse for the invasion of the physicians' field was that physicians, individually and collectively, would not practice preventive medicine. No health officer could sit idly by, while children died, incipient tuberculosis became advanced and venereal disease ran rampant—when aggressive ac-

*Presented before the Minnesota State Sanitary Conference, St. Paul, December 14, 1931.

tion, though wrong in principle as an invasion of the physicians' field, could prevent this unnecessary loss of life.

The gulf thus developed between the practitioners of preventive medicine and the practitioners of curative medicine should never have been created. It is now fortunately being bridged over and eliminated. Preventive medicine is now being taught to undergraduates in all Class A medical schools. Medical societies as collective units are preaching preventive medicine. The average practicing physician now recognizes preventive medicine as his job, and the more progressive ones concede it to be the more important part of their job.

Even with the amazing development of preventive medicine activities since 1900, the immunization campaigns, drives for early discovery of diseases and defects, pre-natal clinics, baby welfare stations, clinics for tuberculosis, venereal and other diseases, certain fundamental defects are apparent in our public health programs which can only be corrected by the concerted effort of county medical societies properly organized, or by further expansion of state medicine into the doctors' field.

1. *Maternity and Infancy.*—Health departments and unofficial activities have secured results in reducing very greatly the infant mortality rate, but this reduction is almost entirely in children over one month old. The death rate for mothers and for babies under thirty days old still remains unnecessarily high. The only way in which this high rate for mothers and children under one month can be reduced is by better prenatal and obstetric care by physicians, who have had proper, adequate training in obstetrics and who have available expert consultant advice and lying-in hospital and clinic facilities. The ignorant midwife is responsible for much, but part of the blame attaches to physicians practicing obstetrics without adequate training or experience and who do not have access to expert advice or a lying-in clinic and hospital. To correct this is the job of the organized county medical society aided by the state medical society and the medical department of the University.

2. *The Pre-School Child.*—Our greatest defect in public health work today is our failure to secure preventive work in the child from one to five years old. With all our clinics, splendid work by public health nurses, efforts of parent-teachers and other organizations, we have barely scratched the surface in this field. Preventive medicine in this age group can only reach its full possibilities through the initiative of the properly organized county medical society assuring the individual participation of all its members. The health department with this coöperation could thus secure the necessary preventive work in this age group, instead of waiting for school age.

3. *Preventive Medicine for the Adolescent and Adult.*—Here the great need is general practitioners who have knowledge of modern technic for early diagnosis in the incipient stage and who have such equipment available. It is too much to expect that they should have this equipment in their individual offices; but the equipment and apparatus should be readily available, within easy reach and freely used. Too often we find plain symptoms of gastric or duodenal ulcer treated for months by prescription as indigestion; incipient tuberculosis treated by prescription for months without diagnosis until it becomes moderately or far advanced; pathologic conditions of gallbladder or appendix without a Graham test or X-ray treated for months by prescription until some acute climax forces operation or causes sudden death; hyperthyroidism and hypothyroidism receiving perfunctory office treatment by prescription without basal metabolism tests; treatment of female genital complaints by tampons or by guesswork surgery; and office treatment of many other conditions without the use of modern diagnostic methods.

In the large cities and medical centers the diagnostic equipment is available and more likely to be used, and the general practitioner of fifty or more years of age is likely to have kept pace with the advances in diagnostic technic. In the small cities and towns and in the large rural areas, where the average age of physicians is fifty-two years, it is quite another story. If a man or woman not acutely ill asks for examination or treatment, the examination is perfunctory and incomplete. The campaign and propaganda for annual physical examinations of the apparently healthy fell far short of its possibilities, because in cities the examination costs too much or the applicant fears an unknown cost, while in the small cities and towns and rural areas the facilities for complete examination did not exist.

FACTORS IN THE FAILURE OF ORGANIZED MEDICINE TO CORRECT THESE DEFECTS

1. *Lack of Organization.*—We speak of the organized medical profession, but its organization is little more than provision for periodic meetings for the reading and discussion of papers on scientific subjects. An exaggerated sense of ethics makes many physicians shrink from anything like business organization; yet organization on a business basis, provision of clinic facilities, regulation of fees on a sliding-scale basis according to income are essential if State medicine is to be prevented. There are notable exceptions. The medical society of Kings County (Brooklyn), the New York Academy of Medicine, and the Wayne County (Detroit) medical society have taken steps toward business organization with a view toward social service, but, except for these and a few others in the large cities, county medical societies are unorganized except for periodic scientific meetings. The business side of their real obligation, to establish facilities for the best preventive medicine and surgical advice and treatment at a price that each citizen can afford, is entirely neglected.

2. *Cost of Medical Care.*—The best modern medical care is worth all you pay for it, provided you can afford the cost. The cost has not increased out of proportion to the costs of other services. Medical care, especially early diagnostic procedures and treatment, has been expanded and amplified by the discovery of more precise methods of diagnosis and has become exceedingly complex. This necessarily increases the cost of examination as compared with that of forty years ago, when the physician used only his own senses and perhaps a stethoscope.

In the large cities the facilities for early diagnosis and for the best preventive medical and surgical care are available. The trouble here is that the man of moderate means does not know what it will cost; and, fearing that the cost will be excessive, he avoids the doctor and the clinic and neglects himself and his family until serious illness or injury results. In the small cities, towns, and rural areas, lack of proper early preventive treatment is not due to the cost, but is due to lack of facilities for early diagnosis and treatment. I have seen in many small cities a small modern hospital approved by the American College of Surgeons but without an out-patient department. What does this mean? There is no provision for preventive medicine; a man must be knocked down by an automobile, have typhoid fever or pneumonia, in other words, be seriously injured or acutely ill before he comes in contact with the modern equipment of such a hospital. There must be a decentralization of modern equipment from the large cities and medical centers to the small cities and towns, and also a better distribution of young physicians who know how to use this equipment.

3. *Distribution of Doctors.*—Next to the need for out-patient facilities and modernly equipped clinics, the greatest need in the small city, town and rural areas is for more and better trained physicians.

The young medical graduate of a Class A school today is trained in preventive medicine and is taught to use the modern instruments of precision in diagnosis. He learns to depend upon the modern facilities which are used in his college and hospital training. These are available in the city, and, hence, he stays in the large city. He will not go to the small town because these facilities do not exist and he cannot practice medicine in the way he has been taught. Here again the remedy is obvious—there must be decentralization of modern diagnostic and treatment facilities from the large cities and medical centers to the small city.

In the distribution of young, highly trained graduates, the law of supply and demand is inoperative. Why? The reasons given above explain. The young physician would go to the small city or town where the demand for his services is greater, and the remuneration also greater, rather than practice in the keen competition of the city over-crowded with physicians, provided he could practice medicine in the modern way with modern facilities, which he considers indispensable.

REMEDIES SUGGESTED FOR CORRECTION OF THESE DEFECTS

1. *Provision by County Medical Societies for Equipment for Early Diagnosis and Treatment.*—The citizens living in small cities, in towns, or rural areas are, in common justice, entitled to the use of up-to-date facilities for diagnosis and treatment quite as much as the wealthy or the poor living in the large city or medical center.

The county medical society should establish or cause to be established in the county seat and, in populous counties, in other small cities out-patient clinics completely equipped for early diagnosis and treatment. They should fix the fees on a sliding scale according to income—for example, dividing the clientele into three or more classes, as follows:

a. The indigent to be paid for by the county at a fixed rate.

b. Those earning less than $1,500 per annum to pay a minimum fee.

c. Those earning from $1,600 to $2,400 per annum to pay a higher fee.

d. Those earning over $2,400 per annum to pay full fees.

The fees for house or office visits should be determined for those same classes. The facilities for diagnosis or treatment in the out-patient clinic or hospital should be available to all members of the medical society and the fees collected divided pro rata.

2. *State Medicine.*—The term "state medicine" is used here because it commonly signifies the bogey that continually confronts the practicing physician. State medicine means the assumption by the Government (Federal, State, or municipal) of the obligation to give every citizen or group of citizens medical and surgical care. In general, this would mean the State government; but the same results, as far as the practicing physician is concerned, are possible by the encroachments of private corporations which assume this obligation for their employees, using salaried physicians to do the work.

The advocates of State medicine have claimed that the defects noted above in our public-health activity would be corrected by State medicine, because medical and surgical and, presumably, preventive advice and treatment would be available to all citizens without cost. One must admit that, theoretically, under such a system, treatment would be available to all; but some doubt that there would be entire satisfaction with the quality of such medical care. The average American citizen feels that he is entitled to adequate treatment, and he has been educated to the point where he knows something of the newer methods and equipment used in modern diagnosis and treatment.

In presenting this paper there were two objects in mind: the first concerning the practicing physician; the second concerning pubic health administration. I should like to see the medical profession solve its own problem in its own way without outside interference by governmental or any other agency. Proper organization of county medical societies will make State medicine impossible, enable the physician to retain his self-respect, and preserve that priceless, intimate, confidential relation that should exist between physician and patient. In regard to the second objective, more efficient public health administration, this same organization of county medical societies would also correct the defects in our public health activity cited above. It will make possible better lying-in facilities and better consultant advice for prenatal work. It will provide the machinery now lacking for early diagnosis and treatment of diseases or defects in the pre-school child and in adolescents and adults as well.

THE INEVITABLE END OF PUBLIC HEALTH WORK

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Billings, Montana

IN reviewing the history of public health work one notices a constant widening of the conception as to what constitutes its legitimate scope and a continued broadening of its field of activity. At first simply an agency for the prevention of the spread of contagious disease, its attention was confined to quarantine regulations and a so-called terminal disinfection, the efficiency of which seemed to have been gauged more by its offense to the olfactory organs than by any real knowledge as to its lethal effects on the bacteria concerned. Elementary common sense, however, soon suggested that the best way to control such diseases was to prevent their originating, and knowledge was sought of the causes and means of destroying these before they

could produce disease. Thus the connection between typhoid fever and the water supply was discovered, and public health work had to extend itself into the field of sanitary engineering.

Similarly blind quarantine and fumigation had little effect on the incidence of yellow fever, but when its connection with the mosquito was learned it became possible to wipe the disease out, though to do it the health department had to take upon itself the task of draining swamps.

Contagious disease, however, constitutes but a relatively small part of the ill health of a community, not more than 5.6 per cent, according to De Porte[1] after making a survey in New York state. Progressive health officers have, therefore, not hesitated to extend their operations in any direction in which they think they see an opportunity to lessen morbidity. Thus, when the connection between endemic goiter and lack of iodine was demonstrated, they exerted themselves towards seeing that growing children were supplied with a sufficiency of that element, and have also promoted soil surveys to determine its iodine content. The possibilities from an extension of this work are great, for we really know very little of the mineral metabolism of the body, and insufficiency of inorganic constituents of foodstuffs may have much to do with disease.

It has been difficult, however, to bring the public to an appreciation of positive health measures. It is always easy to get them to visualize the dangers of a person sick with a disease like smallpox, and measures directed towards a curtailment of such an individual's activities are fairly sure of receiving general approval, though possibly not of the individual himself, but methods of disease prevention which require some definite action on the part of those apparently well are not so well received, as witness vaccination against smallpox. Difficult also has it been to bring people to a realization of the fact that apparent health may not be real health, that disease may be latent or masked, only to be appreciated by the expert, or that, while a person may not be actually diseased, his bodily processes may be working poorly on account of faulty habits or a bad environment, or that the development of children may be impaired because of the ignorance or poverty of the parents or guardians.

Neither has it been easy to obtain public acceptance of the idea that these were matters which concerned any others than those immediately affected. Each individual was supposed to be able to work out his own salvation, and how he and his family lived was nobody's business but his own. Even the churches, which had theoretically long answered in the affirmative Cain's question, "Am I my brother's keeper?" seemed to fail to see the logical implications of their answer, and though often waxing eloquent over the pitiable plight of the poor benighted heathen, whose uniform, as Kipling expressed it, "wasn't much before, and rather less than half of that behind," frequently failed to visualize the still more pitiable condition of the child at their doors, who had to meet the rigors of a northern winter with insufficient calories inside him, and too little clothing outside him to keep even these few calories in.

Some there were, however, who took their religion seriously, and, aided by pure humanitarians, and not a little, be it said, by so-called radical politicians, succeeded in educating public opinion on these matters until legislative and other measures were initiated to mitigate in some degree the evils. Further, business and commercial leaders began to appreciate that sickness and malnutrition in their workers represented an economic loss to them, while the World War focussed attention on the large number of men whose efficiency as war material was impaired or altogether destroyed by physical deficiencies which could have been prevented. Thus a combination of altruistic and purely utilitarian motives succeeded in bringing about a very much greater interest in public health work until now we have almost an embarrassment of riches in agencies to promote it, often, I am afraid, to the discomfiture of the health official, who has to serve as a buffer between the proponents of the various plans and the legislature from which he has to extract the necessary financial assistance.

Unfortunately, these activities largely lack intelligent direction and coördination. Depending, as many of them do, on private initiative, they are necessarily often erratic and sporadic. One community may be the possessor of an energetic and public spirited citizen who by sheer force of personality focusses attention on these matters and gets things done, while an adjoining community, lacking such a guiding spirit, is altogether neglectful of them. Boards of health, especially local ones, are in similar plight. The

progressive community has an efficient full-time health service, while the unprogressive one satisfies itself with the casual ministrations of some more or less competent doctor, who expects to make up for the deficiencies in remuneration by the advertising which he thereby obtains. The very fact, however, that such a gesture of public health service is made at all is eloquent testimony to the success of the campaign of education which has been carried on. In one phase of it, the care of infants and children, so far have we gone from the old doctrine of the parent's exclusive rights and responsibilities, that President Hoover, whom no one could accuse of socialistic tendencies, can say:[2]

"The ideal to which we should strive is that there shall be no child in America that has not been born under proper conditions, that does not live in hygienic surroundings, that ever suffers from under-nourishment, that does not have prompt and efficient medical attention and inspection, that does not receive primary instruction in the elements of hygiene and good health, that has not the complete birthright of a sound mind and a sound body, that has not the encouragement to express in fullest measure the spirit within which is the final endowment of every human being."

All of which is very good, and may be presumed, I suppose, to express the attitude of the major political party in this country, in other words, the consensus of American opinion, but we have a long way to go before achieving these ideals, and our politicians will have to enlarge many of their conceptions as to the functions of government before we do so.

If the child is to live in hygienic surroundings attention will have to be given to the problem of housing. I do not believe that any country in the world can show a larger proportion of fine homes, well equipped with facilities for good living, than America. But can anyone familiar with the living conditions of the poor in both town and country—and remember that here, as elsewhere, the poor, the relatively poor, if you will, make up the mass of the population—maintain that these are satisfactorily housed? Slums in the city and shacks in the country abound, and, though to have been born in a log cabin may be an asset if one aspires to be president, continued living under such conditions does not make for health. Hilda Rose's Stump Farm is a revealing illustration of life on a homestead, and no one with personal knowledge of these conditions can say it is overdrawn.

To be born under proper conditions means that every pregnant woman has medical care and supervision; that, if unable to provide it for herself, she is furnished proper food, and that her confinement takes place either in a hospital or some house where the necessary facilities can be obtained. Those of us who have done obstetrical work, either in the town or country, know how widely the actual conditions fail of the ideal. I have myself delivered women in places which I would not have chosen for the parturition of a valuable dog. Many women receive no attention at all until their hour arrives, and then hasten to secure the services of any doctor they can manage to get hold of. That they get one at all is often a matter of luck, for, knowing how poor are the chances of getting paid in such cases, doctors are becoming increasingly shy of attending them, and I think there is a growing feeling of resentment in the profession at having the burdens which should be assumed by society in general thrust upon their unrequited shoulders. Antenatal clinics have been organized in some places to meet some of these needs, and do good work, but, as emphasized at the Congress of Obstetricians and Gynecologists at Dublin,[3] the only suitable individual to take care of a woman during her pregnancy is the one who is to attend her during her parturition.

How much "prompt and efficient medical attention and inspection" does the average infant get? Unless some gross nutritional condition or an infectious disease arises it is never seen by a doctor at all. The milder degrees of malnutrition, the chronic diseases, are all generally overlooked, perhaps to be discovered when it is too late to do anything for them. Some of our women's organizations are making praiseworthy efforts to provide for their needs by holding occasional clinics, to which mothers are invited to bring their children for inspection, but though undoubtedly much good is done in this way, it is at the best a makeshift arrangement. It does not provide the constant attention which alone can secure proper results; neither is there any assurance that the medical attention is of the efficient kind desired by the President, for generally it is expected to be given gratuitously, or nearly so,

and such service is notoriously not always competent.

Perhaps the school child receives the most attention at present. But even here there is great diversity in method. Some schools have school physicians, more have school nurses, but many have no care at all. The provision of school nurses is altogether admirable, but adequate health service needs medical men and women. Notwithstanding the overloaded curriculum in training schools for nurses, and notwithstanding the ambitious examination questions to which nurses are subjected by state boards, many of which, by the way, I am perfectly sure I would fail on myself, nurses are not doctors. To make health examinations needs expert diagnosticians, even more so than to pick out the palpably sick. This can only be done by competent physicians, and these will often need specialist assistance, not forgetting the psychiatrist, for mental health is of no less importance than bodily health. Then, again, it is of no use to pick out the sick unless the necessary treatment can be provided for, and for this we need the family practitioner.

However, childhood is only a period of preparation. The child is an economic liability, and unless, when his period of training is over, he becomes and remains a useful producing member of the social organization which has borne the expense of training him, its money has been wasted. Like any other machine, in spite of the most meticulous care in its manufacture, as soon as it is put into active operation it becomes subject to the effects of wear and tear and accidents which impair its usefulness and necessitate constant care and attention. Therefore, as an economic and engineering proposition alone (and President Hoover is too good an engineer not to see it if it were brought to his attention), the acceptance of the principles laid down by him necessarily and unavoidably leads to the acceptance of the further principle that to the adult also must be secured good hygienic surroundings, proper food, and efficient medical supervision and care. There is no altruism involved in this. It is simply good business to see that money expended brings an adequate return.

Big business is already beginning to grasp this, more and more recognizing that the health of the workers is of as much importance as the condition of the machines they operate. Absence on account of sickness always produces more or less disorganization, the degree increasing with the importance of the individual involved. Accordingly many corporations now arrange for the medical examination and care of their employes as a detail of their business, and each individual, being part of the machine, is selected so that he will give as little trouble as possible. But their whole idea is to reduce costs, even their medical services being arranged on this basis. Dr. Watson, of the American Telegraph and Telephone Company, throws an illuminating sidelight on what can be expected from them in public health work when he says:[4] "Throughout industry in general the funds available for the employment of physicians will not permit medical departments to hire experts. Further, as medical work grows in any given industry, the various steps of examination will have allotted to them a time limit, indicating to the medical employe that he must likewise produce and get his product out with a certain amount of celerity." I suppose the next step in this process of speeding-up will be to put the patient on a conveyor, and have the various physicians do their part of the examination as he comes by.

But even if this service were of the best it still leaves out a large part of the community. There are those employed by the smaller aggregations unable to afford a medical department, those temporarily out of employment, the aged, and those who through sickness or other reasons have been "scrapped" by industrial concerns. These must depend upon what arrangements they can make personally for medical service, and, as they are the least able to pay for these services, they will either have to depend on charity or the benevolence of the private practitioner. This is a serious matter for him, for, as was emphasized to me recently by a general practitioner in Philadelphia, more and more are those best able to pay for service being taken from him.

For the efficient promotion of the nation's health we need some coördinated system which will make provision for the medical care of all the people at all times of their lives. This, I take it, is the logical end of all the public health teaching of the last few years. Both officially, as public health officers, and privately, as practitioners of medicine, the medical profession has been engaged in educating the public as to what could be done in the matter of improving or preserv-

ing their health. We have taught them how many diseases can be prevented. We have shown them the importance of proper food. We have stressed the value of periodic examinations. And so seriously has the public taken our teaching that they are now crying out for all these things. Unfortunately, however, it does not seem that at any time we have given serious consideration to the problem as to how these things are to be supplied. The economic side has been almost entirely neglected. At the same time that we have been emphasizing the need for medical services the cost of them has been rising, largely because of the improved methods we have adopted. X-ray examinations, blood chemistry, basal metabolism, electrocardiography, to mention only a few, are no longer luxuries but necessities, and the public have learned the value of them. As a result, they are exhibiting a most disturbing interest in the whole matter of medical practice as at present conducted. The magazines are full of articles on the subject, all showing a most pronounced dissatisfaction with the present conditions, and demanding that a serious effort be made to devise some more satisfactory method.

Typical of these is an article in the New Republic of June 5, 1929, "Public welfare workers have found that the cost of illness . . . has become so great as to involve the financial ruin of many families so afflicted, or, indeed, so prohibitive as to render proper medical care impossible. They have also found that the average professional earnings of physicians and surgeons are too low to offer a proper return for the elaborate education and training necessary to attain and maintain that high professional efficiency which is demanded at the present time." It goes on to say that "even in the cities a large proportion of the population goes without adequate medical attention. In the Mulberry district of New York it was found that 16 per cent of the persons confined to their homes on account of illness and 22 per cent of those too ill to be at work obtained no medical care from a physician." It concludes: "The subject is of such importance that a comprehensive canvass of the situation is imperative, and is a work of such magnitude that it must of necessity be governmental in character."

The recent action of the Chicago Medical Society has further focussed attention on the matter, and unfortunately left the impression that the medical profession is averse to any change. Personally I cannot help feeling that this impression has some slight basis. It is reflected in the attitude[5] assumed by the Journal of the American Medical Association towards the Sheppard-Towner bill, an attitude based, as far as I can gather, on its injection of federal activities into state affairs. One would be inclined to think that the writer was a dyed-in-the-wool Democrat from his enthusiasm for state rights. I do not notice the same righteous indignation against federal aid for good roads. It is too well known that without federal aid our automobiles would still be stuck in the mud most of the time. Personally, though I strongly believe in the academic doctrine of states' rights in general, I am sufficiently pragmatic to take advantage of federal assistance whenever it will do any good. I strongly suspect the editorial writer to be guilty of what the psychologists call rationalizing, the real reason for his attitude being the bogey of interference with private practice, a suspicion strengthened by the statement[6] that neither the Sheppard-Towner act nor the later bill "lays down any line of demarcation between the welfare and hygiene of mothers and children and the welfare and hygiene of the rest of the people," a neglect, to my mind, caused by the very simple fact that there *is* no line of demarcation, for whatever affects the welfare and hygiene of the mass of the people necessarily and consequently affects the welfare and hygiene of mothers and children. How indeed can the health of the mother and children fail to be affected by the sickness and consequent loss of earning ability of the husband and father?

In fact the attempt to draw a hard and fast line between what is known as public health work and general medical practice is an impossible one. They overlap in all directions, and because of this overlapping the efficient health officer is continually getting into trouble with the rest of his professional brethren for poaching on their preserves. It cannot be too strongly insisted on that no one has any vested rights in the sick. These are a national liability, and the nation, through its agencies, has the right—nay, it has a duty—to make whatever arrangements it deems best for their care. As public spirited citizens we should further these efforts, though as men of business whose services in the matter are required, we have a right to insist that fair and equitable

terms be made for these services. We should see to it that we are not exploited, as we so often are under present conditions.

Fair and equitable terms, however, does not mean a system by which some men may amass fortunes. I can easily understand the satisfaction with the present system on the part of some of our medical hierarchy, especially those directing large and wealthy clinics. It must be very gratifying, and tickle one's self-esteem hugely, to be able to point to the large amount of charitable work done for the poor, the while one recoups oneself by charging outrageous fees to the well-to-do. Such medical largesse reminds me of the noble highwayman whose exploits used to thrill me as a boy, who held up the stage coaches and robbed the wealthy, and then from his unhallowed makings gave doles to the poor. In proportion to his income the average country doctor does more charitable work than the whole lot of them put together, and as a consequence he is dying out. This cannot be permitted, for we need him. No public health service can be effective which fails to include the man who visits the sick in their homes, and a coördinated system of medical service will provide for just remuneration to him and all engaged in practice. We can do without the medical plutocrats.

This coördinated system of medical practice, which will knit together boards of health and medical practitioners, having as its principal object the prevention of disease, but providing medical service for all the people who need it whenever they need it, and effectively carrying out President Hoover's expressed ideals, I believe can only be achieved by some system of insurance against sickness, such as is in practice in some of the European countries. What the details should be I do not pretend to know. Probably we should have to modify them to suit conditions here, though I do not believe we should find the fundamental conditions very different. Undoubtedly this country is rich, richer probably than any country ever has been, but here, as elsewhere and at all times, the riches are unevenly distributed. I read the other day that 90 per cent of the wealth of America is owned by 10 per cent of the population. Most people only just manage to make a living and meet their ordinary expenses, and when serious sickness comes large numbers are dependent upon public or private charity, often, indeed, the unaided charity of the doctor. There is no reason for believing that this will ever be different, for men and women are fundamentally unequally endowed with capacities, political buncombe to the contrary notwithstanding. The parable of the talents is as true today as when it was uttered. Some have ten, some five, some one, and some will even fail to use what little they have. One remembers in this connection the results of the army intelligence tests. Hewers of wood and drawers of water must many of these be all the days of their lives. If you believe that these inefficient ones should be ruthlessly left to the play of natural forces that they may be wiped out, then, of course, I have no argument, but in that case public health work has no meaning.

Any such system will have to be compulsory, at least for the masses, for otherwise those who need it most will not have it. Life insurance demonstrates this, for in spite of an army of solicitors many have none at all. By such a system the burden of sickness would be spread over the whole nation, like national defense, and when one considers the enormous amount at present spent under our uncoördinated system, I doubt if the total cost will be greater than it is now, even when all are properly provided for. Incidentally it is of interest to note that it has been estimated[7] that an average of $6.30 per capita per annum is spent in this country for drugs alone, as against 59 cents for public health work in 1923. You will have to have far more faith in drugs than I if you believe this money to be well spent. Whether this system of medical service should be run by government agencies as part of the public health service, or through the medium of private companies, is a matter to be carefully considered, but the more the element of private profit could be kept out the better. One calls to mind in this connection the methods of the Life Extension Institute. It would be reasonable to expect a contribution from the federal government, for every man (and under present conditions every woman) is expected to be at its call in time of war, and it is to its interest to see that its potential war material is kept in a condition to be fit for service when needed. For the same reason industry could be expected to contribute. I make no pretense to enumerate the details. The purpose of this paper is simply to plead for a consideration of the subject, to point out that the

logical end of public health work demands such a system, and that, as in the past it has had continually to enlarge its conception of its legitimate field to achieve its purposes, so now it should take up the study of sociology for the same end.

If preventive medicine is to be developed, the gap between public health work and the general practice of medicine will have to be bridged, and though this to some of us may mean the giving up of some of our so-called independence, it will be but in accordance with the general spirit of the times, which has been so well expressed by Professor Shotwell in his book, War as an Instrument of National Policy: "A new attitude is revealing itself in business and internal economics, one which seeks to substitute for ruthless competition some measure of coöperation, so that each member of the community may have a larger share in increasing the common good."

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PERIODIC HEALTH EXAMINATION: A DISCUSSION*

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THE first function of physicians is treating the sick. The process of a health examination is a definite departure from our usual vocation. It perhaps requires greater insight into human nature than is required in helping the ill back to health. There should be a nice balance of judgment between over-zealousness to correct what might be termed a normal abnormality and care to give attention to an apparently insignificant finding for which medical advice ought to be given. The doctor who probably best renders this service is the personal physician who knows something of the client's habits, his family, and his finances, and it can best be rendered in his own office.

The program of periodic health examination consists of an effort on the part of physicians to utilize preventive medicine which shall be all-inclusive to the laity. Its scope and possibilities are probably as great as any public health activity at present adopted. Child welfare and similar movements have made the public mind receptive. The present agitation for periodic examinations might be termed a "revival," for sporadic attempts have flared up and cooled off during the past eight or ten years.

Probably the most concerted effort is that of the health examination campaign of The Greater New York Committee on Health Examination. Its success promises profoundly to affect for the better the relations of the patient and the physician. The Greater New York Committee last April inaugurated a carefully formulated five-year program. They issue gratis to physicians a monthly pamphlet called the "Health Examiner." The movement is spreading over the country, and the aggressive medical profession of Minnesota will not be lagging.

The idea of examining well persons perhaps has a religious origin in an attempt to cleanse the soul. It was first recorded by Dr. Dobell in England in 1861 and again sponsored by Dr. George M. Gould of Philadelphia in 1900. In 1923 a committee of the American Medical Association, headed by Dr. Haven Emmerson, issued a pamphlet as a guide for examiners. This is well composed. The Canadian Medical Association issued a similar guide about 1928.

Preventive medicine recognizes the fact that early detection and correction of anatomic defects, faulty function, and unhygienic habits of life make for longevity and life-long physical and mental efficiency.

The scope of the examination is as broad as the ability of the examiner, its length may be

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gauged by the time available and the difficulties encountered, whereas its depth is measured in the benefits received by the one examined. The client has the assurance of well-being, and confidence that he has had a thorough analysis and any fault brought to his attention. The success of the movement depends on the physician. Social reforms are likely to be distrusted by the average mind; however, probably all men and women will welcome the word of their physician that after a careful examination he can find no unnaturally destructive process. The degree of expertness of the physician in the art of medicine will be reflected in whether his results have been worth while to his health clients. Tact will be required not to make a neurotic of a patient with an inconsequential heart murmur, and not to agitate an already introspective mind. Many adults accept abnormalities of body or function as predetermined and beyond their control and submit to them without thought of prevention, and often rightly so. Advice rendered should be such as will recall to the client the fundamental principles of hygiene that he learned in his youth and to make him healthfully conscious of his food, his activities, and his personal care.

Such advice as you choose to give must be for the future well-being of the applicant. Variations from the usual, in the form of moderate hypertension, overweight, underweight, or overly active or overly passive physique or mentality may be entirely normal for the person examined. We have no definite proof to the contrary. Nor do we know that some of the bad habits of the world shorten life, nor that other good habits prolong it. Dr. Raymond Pearl, director of the Institute of Biological Research of Johns Hopkins University, through a clipping bureau, investigated all reports in the press of persons celebrated for having attained a ripe old age. He concluded from the large number of answers to questionnaires that a family history of longevity was the most common and potent factor. In fact, there is abundant proof that much harm has resulted from over-zealous faddists who are more positive in their prognostications than you and I know they have any right to be.

It is easy to look at a patient, and after a short discussion say, "Oh, you're all right," or "Perhaps I might listen to your heart and examine your urine; you should watch your weight a little," but such a procedure is not the purpose of this program. The examination should be inclusive, systematic, and comprehensive.

For complete physical examination, the applicant should be undressed, and he should be examined conscientiously. Here, I believe, the procedure should end unless you have found something really wrong. Help the client to feel that a negative result is the most satisfactory issue. No one ever died of flat feet.

Furthermore, such examinations should be more or less standardized so that Mr. Doe undergoes practically the same routine as Mr. Dee, who may be examined in another city. The examinations must be reasonable in length and cost.

All this calls for a form, and I wish to submit that form adopted by the Pennsylvania State Medical Association as fulfilling the requirements better than any I have so far seen.

There are four pages. The fourth is blank for additional notes and records.

No one can be absolutely certain of the significance of indefinite and minor symptoms. Nature compensates for more or less severe loss of tissue or function, and with or without extensive laboratory and specialized examinations one cannot always be sure of a client's condition. When elaborations of means of diagnosis are indicated, the health client becomes a patient.

Examples of the degree of compensation by nature are found in the heart, circulatory system, kidneys, lungs, and digestive tract; even in cases of cancer of the stomach, muscular weakness, instability of the nervous system, and so forth, such compensation is found. A person does not consider himself ill until he suffers from "dis-ease."

Physicians who almost exclusively have been in attendance on persons with disease, treating serious or long-established processes that have interfered with the patient's comfort or earning capacity, may not find themselves at once prepared to guide applicants for health services in the practice of personal hygiene. Yet the examiner accepts this responsibility. He must give opinions which will make his services worth while.

The previously outlined, completed examination is but a guide on which to indicate abnormalities, but this record does not tell as much of the client as does your personal impression. This is where the art of medicine is manifested.

Your final conference is the lasting contact, and the final five minutes fixes the ultimate value.

Your advice and prescription may be a few words of assurance, or it may be a dissertation on the proper functions of any part of the body, or advice as to overweight or underweight, digestive disorders, insomnia, nervousness, or sexual relations. If you have fulfilled your duties, the health applicant usually will be satisfied.

The importance of properly conducted health examinations has been felt to be so urgent that it is being incorporated in the curriculum of some of the leading medical colleges. Health magazines, radio talks, and newspaper articles are advocating its adoption. Organized medicine is reviving the interests of the profession. Some will find its exactness laborious and tedious. There should be definite systems of record and follow-up. Later, as the accumulating records pile up, tabulation of your findings and comparison of these with those of other communities will add interest. Valuable information of vocational age groups would undoubtedly be revealed. The only other similar record is that of army officers; it is found that in this selected class of healthy young men, degenerative changes become apparent after about five years. Records should be made adaptable to the punch card system for future tabulation. Some practitioners undoubtedly will seek additional training and guidance. In this respect the university extension courses might prove helpful.

As a résumé, I would say that the examination should consist of a carefully conducted physical evaluation of each applicant, recorded on a standard form adaptable to tabulation from all sections of the state. It should end there.

One of the most difficult functions of a physician is to keep well persons from believing they are ill, and this consultation should be so conducted as to state the client's real condition.

Above all things, no physician should approach this program with an idea of feeding patients to his practice.

ECONOMIC THERAPEUTICS*

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I AM offering no apologies for presenting this subject rather than a scientific one, because, if I am able to judge from the morning conversation about the staff rooms at our hospitals, this subject is a live one.

As some of you know and as Amos and Andy express it, "we are in a state of repression." This is seriously affecting the members of our profession, as it is all others and involved with us are our hospitals and our graduate nurses.

If this were the only consideration, I would say that time alone would effect a cure. However, the cause of our present troubles goes back much further than our present economic state. I believe it behooves us as a profession, and our allies, the hospitals and nurses, to take some thought as to the reasons for our present situation and if there be any way to the solution of some of our problems, and an answer to our lowered standing with the general public, that we put our minds and our concentrated efforts to the solution of that problem.

Military experts contend that the best defense is a strong offense. This rule may apply to us. Let us not deceive ourselves. The medical profession and in part our allies, the hospitals and graduate nurses, are not popular with the general public. In other words they don't like the way we do business. Some time ago I read a list of the popular magazines and periodicals that have, in the last year alone, published articles criticising our profession, mainly from the economic standpoint and partly from the viewpoint of the layman, in regard to our so called Ethics. This list was staggering. Something is wrong when such a barrage of criticism is fired at any group of men as is being directed at our profession. It is not sufficient to say, "We know we are all right and all the rest of you are wrong." Perhaps we are and perhaps not. At any rate, in this instance, virtue is not its own reward. It appears to me that it is time that organized med-

*Read at the Asbury Hospital Staff, January 6, 1932, and reread, by request, before the Hennepin County Medical Society, February 10, 1932.

icine had a rather thorough soul examination to see if there may be anything to the contention of our critics.

Economic existence of our private hospitals is necessary to us as a profession, if we are to practise medicine. They are our workshops. It is necessary that we have competent trained nurses, as they are our allies. It is certainly necessary for the members of our profession, if we are to maintain the high standards set before us by our predecessors and to continue to advance in the science of practise of medicine as the times demand.

If we do not present a satisfactory answer to our critics and adjust ourselves to the demand of public service, the public, who is least competent to solve this problem, will answer it for us and probably unwisely.

I do not wish to pretend that I alone can suggest a corrective program but I do wish to present the following thoughts, which appear to me to be both critical and constructive, as the basis for argument and for your consideration and criticism, within our profession and not for public edification.

Publicity.—We have through our medical organizations and through years of undue emphasis on ethics, deliberately and with intent, kept out of the press, which is the general information source of the public, all except the most formal notices bearing upon the life work and activities of our profession and of our hospitals. Much of the material that has been presented and used by the press in a big way, has been public criticism of our profession by members or agents of our profession. As illustration, the widespread lectures and front page publicity a few years ago, that the majority of operations done in our hospitals were unnecessary ones and that anyone having lost a member of their family through operation or complications that must have developed in operative procedure, should promptly bear this fact in mind. This was front page news in every paper in the United States. Or more recently, the headlines from the Chicago newspapers, "Highjackers in medical work are assailed," by a prominent members of the medical profession, as incoming president of a medical organization. Another, "Spotlight of criticism on the profession as a cause of high cost of medical service." More recently, "Medical bootleggers." And these illustrations could be quoted indefinitely. I ask—is there any other profession that would try to correct their errors, if any, through such means? Do we not have sufficient private laundry facilities in our medical organizations and hospitals to take care of our dirty linen without waving it in the face of the general public?

I do not hesitate to declare that organized medicine has done more harm in this regard in lowering the esteem in which our profession was formerly held by the public than any and all other agencies openly employed against us. I do not approve, nor do you, of the objectionable individual advertising of the individual doctor, of his special skill, of his unusual operation, or such matter, but there is a middle ground that could be covered by news items, favorable and not critical of our profession. The press is as willing, I believe, to accept such publicity as unfavorable news. They want news.

Certainly one well known clinic has never, to my knowledge, despised favorable publicity and I admire their judgment and acumen in that regard. Favorable publicity of our local men and local hospitals helps us all. Unfavorable publicity hurts us all. It is about time we fought for each other instead of against each other. Every time I hear a special group in our profession undertake to promote themselves by unjustly roasting the rest of the profession in the public press, one local group criticise another group, or one member of our profession say derogatory things about another doctor, I think how useless, wasteful and pernicious it all is, and the sad thing about it is there is so little truth in any of it. I quote from the last bulletin of the American Medical Association: "There has been so much shooting at our profession by all sorts of marksmen, many of whom have used dum-dum bullets and other forms of ammunition forbidden under the rules of the game, that it is gratifying to one who still believes in the doctors of the land, to find an editorial here and there that gives some credit (to our profession) for sense, honesty and humanness." We will get sufficient opposition and unfavorable press comment by those opposed to our profession. We have been educated to the state where the only favorable publicity a doctor can read about himself, without blushing and dodging his colleagues, is his obituary.

Now, why is this so? It is not true of any

other profession or even commercial organizations. A member of the sacred profession like the ministry may admit to a good friend, in private, that there is here and there an occasional brother who may stray from the "straight and narrow path," but I do not see the prominent members of their profession or their organizations bursting forth into print, and charging wholesale perfidy of their noble calling. No—they hold their trials in private and chastise their brethren in private, as the proven facts justify. Bankers do not vilify each other in public. Commercial organizations reprove and condemn unfair advertising on the part of any one of their members when such advertising hurts the entire industry, by supposedly boosting the individual advertiser. Does not even good taste dictate that family and professional quarrels, if any, be fought out in private? And then, strange to say, we are pained, grieved and hurt when the public take us at our own advertised valuation.

The public press every now and then features some sob story and I conclude from reading these that most every fair damsel who marries without love a wealthy man or otherwise loses her virtue, does so to get the money to pay for an operation of her dear mother or father. We know the absurdity of such stories but such is the food upon which our public is fed.

The Bar Association recently announced and is putting on a publicity campaign, frankly to the public, to enlighten them as to the aims and ambitions of the legal profession. I have confidence in our profession and confidence in the public, and, were our mutual problems better understood, I believe that much of the present criticism and suspicion directed at us would be cleared up.

We need more members of our profession in public office, national, state and local governments. It appears to have been the policy of our profession to raise the eyebrow and disparage unselfish service of our doctors in public office. We need and should encourage members of our profession to represent us where laws are made and public policies determined and not to refer to them as "political doctors." The legal profession has no trouble in getting any legislation they need, because they are on the ground with their personal contacts and votes.

Specialization.—Is there anyone who will deny that this feature of the practise of medicine has been overdone? When times were booming and money burning to be spent, the public took rather kindly to this innovation, as it flattered their vanity and gave them much topic of conversation at the afternoon tea table. Now things are different and the public are looking again for the extinct family doctor. The specialist should be a promoted or a postgraduate practitioner of years' experience in treating the body as a whole and the general ensemble not forgotten when his work is later confined to the consideration of a finely divided portion of the whole. The sudden bursting forth of the sprout of specialization within a short time of graduation, often leads me to conclude that the roots are sustaining nourishment from the top soil of ease and office practise at substantial fees, rather than dipping deep in the subsoil of experience, sacrifice and hard work, which after all tends to produce the most perfect flower of professional attainment. Certainly the well prepared and well grounded specialist is a necessity and a life saver for the general man, when special skill and knowledge is necessary in the diagnosis and treatment of obscure conditions.

The general public, in many instances, have been frightened by the elaborate details and the expense of the physical check-up, given in late years, especially by the clinic groups. They are often told by this specialist that the cardiograph is off a wave or two, by another specialist that the output of urea is deficient, by another that the nasal septum is deviated, etc., etc., until they finish their examination in fear and trembling. Strange to say they continue to live and, after a few months of worry, discover that life is still sweet and reasonably satisfactory. They are apt not to return as patients.

You remember the old campaign slogan, "What this country needs is a good five-cent cigar." I think what the public wants is a fairly good check-up of their essential physical findings for $5.00 by their family physician. If a patient comes into a doctor's office and states that he wants a complete examination and X-ray studies, I believe it would be good business, at that point, to tell him what he may expect in the way of a charge. If he then still wishes to go ahead, and many such examinations are necessary or may be discovered to be so by his physician, he is in no position to cry robber when he receives his bill.

Ultra-refinement in diagnosis and an untreated mental state of the anxious and worried patient, is the greatest factor that drives our patients to the various cults, who actually take the time and sometimes physical effort in doing something for the immediate symptoms, of which the patient complains. They universally breathe hope, courage and an infinite confidence in a cure. How often, indeed, this is the cure!

Dr. Angell, President of Yale University, in a recent address lamented the passing of the country doctor and said "that by no means least of the remedies he carried was the confidence he inspired. Even in these days of scientific knowledge of bacteria, surgery and the like, modern medicine must recognize the intrinsic significance of the emotional and psychic factors in human health. The quality of inspiring confidence the country doctor had in abundance, as he had the qualities of energy and devotion to a profession at once arduous and poorly recompensed. And fortunate it is that, away from the large cities, the old time country doctor has not been entirely supplanted by the specialist." I contend that the great bulk of our city doctors still come under the classification of the general practitioner and he is just as conscientious and certainly more capable than the old time country doctor, praised in song and prose. He just is not heard from to the same extent as is the specialist, and has both the good grace and common sense to keep from bursting forth into print in condemnation of his brethren. I have practised medicine in this city for twenty-five years, to be sure, most inconspicuously and possibly unworthily, but I am proud of the character, the unselfish services and the scientific skill of the average man with whom I have come in contact. I know of no other profession or group of men with whom I would rather associate or to whom more honor is deservedly due.

Ethics.—This is a word I wish we could drop from our professional vocabulary. It is to the general public like waving a red flag in the face of a bull. It should not be so. After all, ethics are necessary and are only a proper code that gentlemen of a noble profession should use in their daily intercourse with one another. But to the public, it is something mysterious, secretive, and a vague device, promoted by the members of the medical profession to better protect their own interests and to cover up their supposed mistakes.

If we wish to take the trouble, we could do much to explain this to the public, in our daily contact with them. I, personally, try never to use the word. For instance, it is easy to explain to a patient, if they want to change doctors, that it is a privilege well within their rights, and not to say, "Our ethics demand such and such a procedure." Rather tell them that the proper and polite thing to do, is to call up their doctor and tell him how they feel, pay his bill and then go ahead and employ the physician of their choice. This is no different from most other professions and many commercial institutions.

The greatest mistake a doctor makes, is when he tries to stay on a case where he is not wanted, or when someone else is desired in his place. A courteous attitude of the discharged doctor towards the patient and his family, in their request, would do wonders in raising us in public esteem. Sometimes the contrary attitude is employed by the physician and then ethics are blamed. Most complications arise when consultants are called, for the patient usually asks for a consultant with whom he is acquainted, or concerning whom he has heard good reports of his success in treating this particular condition with which the patient is affected. I have never had any great difficulty in sensing a situation in which I conclude that the patient would prefer to have the consultant take charge of the case and I do not hesitate to tell the patient and consultant that, if it is agreeable to both, I would prefer to have the consultant take charge. If the consultant shows evidence of promoting this change, I do not call him again.

We would do much nowadays, when so many patients of other doctors are seen in making out insurance examinations, X-ray reports in injury claims, etc., often in the absence of the attending physician, if we would take the trouble to say to the patient, "You are fortunate in having Dr. John Doe attending you, as he is an exceptionally fine doctor," or words to that effect. This sort of a compliment pleases the patient, surely helps the doctor, and, by helping the other fellow, we do most to help our profession as a whole. Suppose Dr. John Doe does not belong to the select few who stand at the head of our profession—still he belongs to the great majority

of us who are just plain doctors. Even the law protects us common fellows by specifying that unusual skill is not essential in the treatment of a case, but that the practitioner need be able only to practise and to use the judgment of the average practitioner of medicine. Our supply of supermen is, after all, rather limited.

Hospitals.—After interviewing the superintendents of several of our local hospitals, I find that these organizations are generally facing serious problems, their occupancy being only from forty to sixty per cent of normal. Several years ago the city specialist decided that the more or less usual custom of joint fees with the country doctor was unethical and, therefore, should be abolished. This was done. The country doctors quickly retaliated, as is human nature, by putting a few beds in his home and his wife-nurse, with one or two other helpers, cared for his patients at home. Thus developed the country hospitals all over this northwest and they are good ones and their staffs are composed of well trained men. The public like this arrangement and our city hospitals have now about one-tenth of their former country patrons. In short, the country hospital and the country doctor have the business and we city doctors have our virtue. Both should be satisfied.

This was followed by the increasing tendency of the general public to accept, as part of their rights from the government, free treatment and hospitalization, by the charity or semi-charity institutions of the state and municipality. I have made an investigation of the public and private hospitals in Minneapolis and I find that the bed occupancy of the private hospital has been gradually declining over a period of the past ten years, while the tax-supported charity or semi-charity hospital beds have enormously increased. For instance, the University hospital admissions have increased in ten years, from 2,444 in 1921 to 6,437 in 1931. The General Hospital beds have increased ten to fifteen per cent in ten years and the outpatient department from two hundred a day to approximately four hundred and fifty a day. Figures on the Veterans Bureau Hospital are not of use, as they are not confined to local cases. We know the general situation in that regard and we know that the ability of the patient to pay his own way does not in the least bar his admission.

Then along comes our present depression to increase the private hospital vacancies and decrease the income of the doctors and nurses. The very poor are well provided for, as are the well-to-do. The average white collared man, who has an equity in his home and a small savings account, is the man who is now hit. Lincoln said, "God must have loved the common man for he made so many of them." These are the great proportion of the general public for whom we should make some effort to provide. I believe now is the ideal time for our hospitals and our profession to provide ways and means whereby this class of patient can be accommodated.

I believe that this should be done by an open advertising campaign to the public. That our hospitals should place a minimum charge upon their ward beds only, for the man with limited means. That nurses now out of employment and in actual want, and there are many such, could be hired by the hospitals to help care for these patients, if necessary, under group care and never one nurse confined to one patient, as is now our absurd custom. The entire financial arrangement should be handled by one wise individual at each hospital, who, through a frank talk with the patient and with outside investigation if necessary, would determine the fee that this individual could pay for his hospital service, together with the staff charge for such medical and surgical attention as might be needed. Again I say, I do not intend this service for anyone but the man who does not want to become a public charge, but who can pay a reasonable small fee for hospitalization and staff care. The man who has his regular job and adequate resources should be encouraged to take the most expensive accommodations at the hospitals, employ three private nurses and pay substantial medical fees.

Doctors are home owners and we must remember that any and all burdens we can lift off our charity hospitals, which will be used to their limits this winter in any case, will lighten the burden of taxes upon our homesteads, and will help keep the general public from becoming charity minded, and delay, at least, the present demand for socialization of medicine. Would not these same individuals, whom we may help at this time to retain their self respect, be the same public that we largely will deal with in the coming years when times become better? After all, how better can we help ourselves than by helping others, and by teaching the public the

true principles of our profession, wrapped up and disguised as it may be by the manifold skeins of our so-called professional ethics and assailed as it is from within by self anointed and "holier than thou" critics.

Mount Sinai Hospital, New York City, has started what is called "a consultation service" for patients of moderate means. This plan has many desirable features which we might well consider.

Medical Organizations.—Of these we certainly have aplenty, but they are mainly concerned with the scientific side of the practise of medicine and too little concerned with the economic problems, which should go hand in hand with the science of medicine. I quote from the "Medical Profession and the Health Department," edited by Dr. A. J. McLaughlin of the United States Public Health Service. "We speak of the organized medical profession but its organization is little more than provision for periodic meetings for some reading and discussion of papers on scientific subjects. An exaggerated sense of ethics makes many physicians shrink from anything like business organization; yet organization on a business basis, provision for clinic facilities, regulation of fees on a sliding scale basis according to income are absolutely esential, if State medicine is to be prevented."

I would like to see our own local organizations devote more time and study to economic conditions affecting our profession and there should still be sufficient time left for the consideration of the scientific. The old instructions as to how to "skin a cat" began thus, "First, catch your cat." Right now we might well consider how to catch again the confidence of the public. This will be best accomplished when the general practitioner, who makes up the bulk of our profession, more often takes the helm of our medical organizations. We have before our ethics committee now and then numerous minor infractions of our so-called ethics. I woud like to see the publicity traducers of our profession, whether individuals or organizations, brought before organized medicine and asked to prove their blanket accusations against our profession or be made to get out of organized medicine.

I have never observed that a bird got any great degree of satisfaction out of fouling his own nest, even if it did produce some discomfort to his associates. The old timers will remember one morning during a presidential campaign, observing upon the billboards, all over the country, this slogan, "Let's be through with wibble and wobble." I would like to see on every bulletin board of every medical meeting place in this country the following paraphrase of the above, "Let's be through with squibble and squabble." One of our old and respected physicians once made a remark to me, that holds a world of truth. He said, "I have never, to my knowledge, profited by any misfortune or ill luck of any of my associates, but I do know that I have been helped by any and all of their successes."

Our national and local organizations are fighting a splendid and unselfish battle to stop the plea for additional hospital beds for the care of disabled veterans and the government employees generally, and in the place substitute the care of these patients in private hospitals. Our medical literature is full of this plan and you are well aware of the situation. But not so the general public. The present time appears to me to be the psychological moment to carry this campaign to the general public, who are now tax minded as never before. The work being done by our organizations through the American Legion is effective, no doubt, but the taxpaying general public would be with us to a man, were the situation known. This opportunity may never again occur.

The general taxpayer, as well as the Legionaire taxpayer, of which I am one, is entitled to this information and that quickly. I surmise that our representatives in Congress would welcome hearing from the general public at this time, in spite of the opportunity for political patronage in their districts, were another unit to be obtained there. We have enough doctors in the American Medical Association belonging to civic organizations to put a stop to this program in thirty days, were they let loose.

The constant rise in dues in our medical organizations is causing an increasing number of resignations, when organization is needed now more than ever. Would not more attention to economic conditions and consideration of practical problems affecting the profession help to hold our members together and make them feel that our organization is alive and interested in the welfare of the individual members, economically, as well as scientifically?

RÉSUMÉ

1. Can we not as a profession, by our better

conduct, organized effort and study along economic lines, improve our status and that of the hospitals and nurses with the general public and at the same time render a better and more efficient service?

2. Private medicine stands at the bar of public opinion awaiting their verdict. State medicine is impatiently hoping for a verdict of "Guilty."

3. Self appointed, self serving and self advertising character witnesses out of our own profession are helping the jury to decide against us.

4. As one of the inconspicuous attorneys for the defense, I plead that the great majority of private physicians, in all branches of our profession, are doing their work honestly, conscientiously and capably and any substitute of socialized medicine will result in deterioration of service and profession.

5. As a profession let's cheer up and boost, criticize not at all in public, and spank, if necessary, in private.

THE TREATMENT OF CLUB FEET (TALIPES EQUINO VARUS) IN INFANTS

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Saint Paul

THE treatment of club feet has been one of the oldest requirements of surgery. Many methods have come and gone, and in careful observation of the literature, while the principle of treatment is somewhat constant, the real course of treatment has not been definitely outlined nor has it been constant in procedure.

Nothing new is claimed for the method outlined, but the results of such procedure have been so much more gratifying and universally more satisfactory than other methods, after years of trial, that it is always used in infants.

The different methods now in use, some quite satisfactory as to end-results, and others perhaps not well carried out with most unsatisfactory endings and quite constant atrophy, limited motion and only partial correction of deformity, I believe make this method worthy of attention.

In many instances, with much less trouble, it is possible to get as an end-result a foot that, at the expense of motion, atrophy, and bony displacement, looks well when covered by a shoe. In a few cases this may be the only end-result possible. The method outlined is applicable to practically all cases as beginning treatment and has the following advantages:

1. Correction of deformity.
2. Preservation of motion of foot.
3. Prevention of marked atrophy of leg and foot.
4. Use of absolute retentive apparatus and dressings for the least possible time.
5. Avoidance of extensive operation.
6. Simplicity of procedure.

The various degrees and types of talipes equino varus are many, but for treatment with prognosis and end-results, my cases are divided into three classes:

1. Cases of easy correction with or without some bony deformity, excluding bony fusion or absence of bone.
2. Cases of difficult correction with definite contraction of tissue and with or without some bony deformity, excluding bony fusion or absence of bone.
3. Cases with definite contraction of soft parts, bony fusion of joints, absence of bone or hypertrophy of bone.

Cases in Class 1 are common and in this class a cure is expected without surgery of any sort, and usually the case is cured before the weight-bearing period.

Cure is expected in cases under Class 2 with the aid of only a simple operation, the child being free from all apparatus before the age of two years.

Cases in Class 3 are seldom met, and while the general contour of the foot may be greatly benefited by outlined treatment, extensive surgical procedures may of necessity be used to secure a serviceable foot.

METHOD OF TREATMENT

To successfully carry out the treatment, some

experience in the use of the plaster-of-Paris bandage in the manufacture of a splint is required. A willing and intelligent mother or nurse and of necessity much patience, time and coöperation are also required.

the plaster is set. Usually only two or three bandages two inches by six feet are used. The cast is then cut over the strip and the cast and lead removed and at once a large portion, almost the anterior half of the cast, is cut away, leaving

Fig. 1. Typical examples of types of talipes equino varus in infants at first examination.

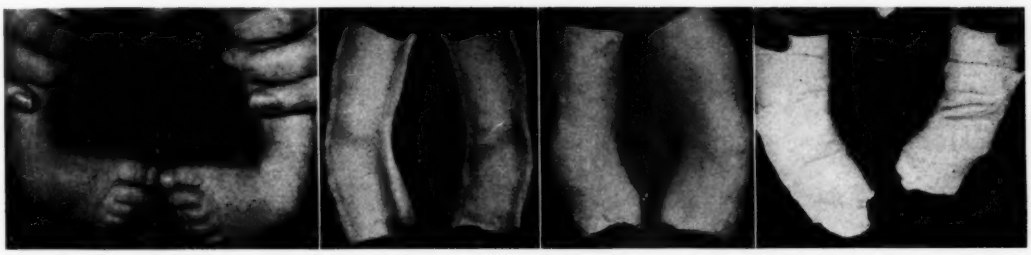

Fig. 2 *(left)*. Typical talipes equino varus; *(center)*, plaster splints ready for application; *(right)*, plaster splints as applied by mother with bandages.

Treatment proper is begun usually at the end of the second or third week of the infant's life. Some gentle manipulation and massage can be used to advantage under proper instruction even before this time. The infant should be gaining in weight and healthy when treatment is started.

The surgeon's part is essentially an office procedure and consists of the manufacture of splints that can be removed and reapplied in simple manner by the mother or nurse. Materials other than plaster-of-Paris have been used, but, because of its availability, plaster-of-Paris has been my choice. Metal splints, moulding felt or dental vulcanite can be used.

Detail of Manufacture of Plaster Splint.—The infant's foot and leg are covered with oil and the varus deformity is gently and firmly overcome as much as possible without force. A lead strip ⅛ inch thick and ¾ inch wide is moulded over the anterior surface of foot and leg and the parts from tip of great toe to knee are carefully and firmly encased in the plaster. Only the varus deformity is overcome by the first application and the foot is held in the corrected position until a small portion covering the great toe. The outer side is cut away enough so that the heel can be slipped into the well defined sulcus. The splint is made smooth, dried, and then painted with paraffin or shellac.

In the average case three or four dressings at intervals of six weeks are necessary to overcome the varus. We feel that after the varus has been overcome, the os calcis has gone back under the foot, the neck of the astragalus is pointing in the normal direction and the body of the astragalus is under the tibia. The bony deformity in the average case is in a position to rapidly approach normal alignment.

The mother or nurse is instructed to apply a stocking or stockinette to the baby's foot. At the office, the splint is applied several times until the mother is sure of the method. A cloth elastic Ace bandage or flannel bandage covers the cast, foot and leg to hold the splint in the proper position. The splint is removed not less than four times daily for manipulation, stimulation, massage, and exercise. Some twenty-five to fifty definite manipulations for overcoming the varus

are taught. Touching the foot with a brush or the finger-tips is used to stimulate muscular contraction. Massage in the form of gentle firm motion over the leg and foot and over the contracted parts is given three to five minutes four times daily. The splint and stocking are removed at bath time for an hour for normal exercise and motion of the foot.

3. Massage is continued as before.

4. The apparatus is removed as before at the bath period.

5. Muscle stimulation is produced by finger or brush to especially invite contraction of the peronei muscles and the extensors of the toes.

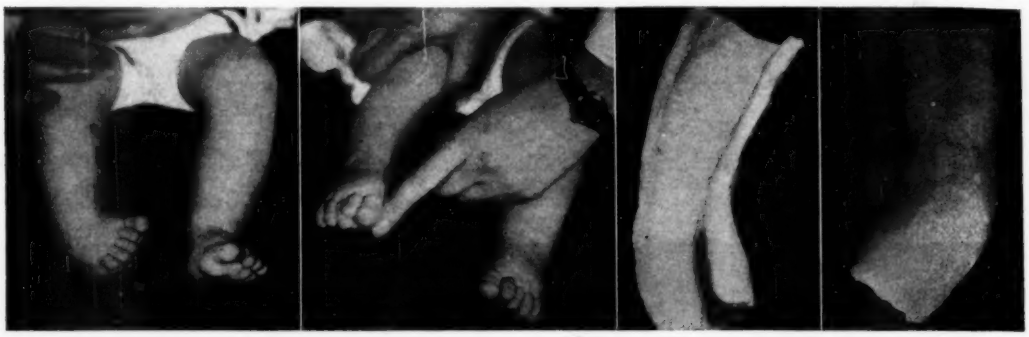

Fig. 3. Typical talipes equino varus showing correction of varus at time of making of first splint. Third and fourth views show splints used in this case.

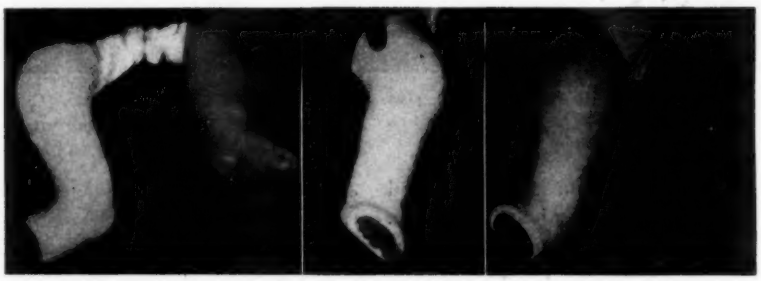

Fig. 4. Examples of correction of deformity at time of minor operation. Foot is in position of calcaneous valgus, cast extending above knee to prevent or correct torsion of tibia.

Treatment after Varus Deformity has been Corrected.—Varus deformity is considered as overcome when the foot and great toe can be held out easily ten to fifteen degrees beyond a straight line from center of leg.

Treatment then consists as follows:

1. A splint is made in same manner, but the inner side is left more open and the outer side comes up over the malleolus, a deep sulcus being left for the heel.

2. The mother or nurse are instructed as to:
   a. Application of the splint.
   b. Manipulation to include stretching of the plantar tissue and the tendo achillis group.

Progress is usually slower during this period, but the foot is in such a position that deformity of the bones and joints will not occur.

This period continues until the child shows signs of standing or weight-bearing. Creeping and crawling are prohibited because frequently the tibia is likely to become twisted internally by the position usually maintained by the foot while this exercise is in progress.

Usually four or more splints are required for this period.

If at this time torsion or bowing of the tibia is present, one or two splints are made long enough to include at least four inches of the thigh and encircle the thigh slightly more than half, continuing the correction of the equinus and

also keeping the foot in valgus to overcome any torsion.

TREATMENT OF INFANTS IN EARLY WEIGHT-BEARING PERIOD, NINE TO FIFTEEN MONTHS

1. In cases well corrected.

Many of these patients stand and bear their

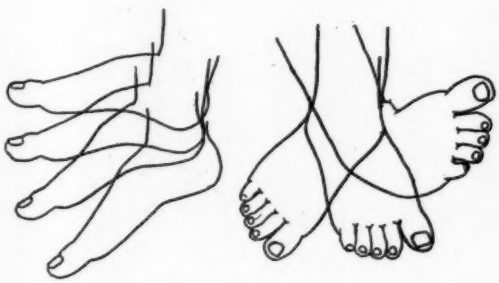

Fig. 5. Schematic drawings showing gradual correction of equinus deformity.

weight perfectly and use a splint usually extending above the knee at this period only when sleeping. Often the shoe is wedged on the outer sole ⅛ to ⅜ inch to overcorrect the position of the foot. A small side iron brace in used in cases where muscle power, especially of the peronei is slow in developing. Often only observation during this period is necessary, as many are cured long before the advent of the weight-bearing period.

2. Cases not corrected at weight-bearing period.

If either the varus or equinus deformity is not correct at the time the child shows signs of weight-bearing, the deformity must be corrected by surgical means. In all cases where there is no bony fusion, nor hypertrophy of bone present, the deformity is of the soft parts and can be overcome, after months of the treatment outlined, by simple surgical procedure.

In non-corrected cases at this age we find a contracted tendo achillis and plantar fascia the prime factors in preventing complete correction by the splinting, manipulative, massage and exercise method.

The child is not allowed to bear weight on a foot that is not well overcorrected both as to the varus and equinus deformity. Weight-bearing with the foot in an overcorrected position is most valuable in changing the shape of the deformed bones and joints, and walking even a few weeks with the foot in an undercorrected position will often add months to treatment and may defeat the object of this simple procedure.

OPERATIVE PROCEDURE IN CASES NOT RELIEVED BY SPLINTING, MASSAGE, MANIPULATION AND EXERCISE AT WEIGHT-BEARING AGE, NINE TO FIFTEEN MONTHS

In cases where manipulation, splinting, massage and exercise have not overcorrected the de-

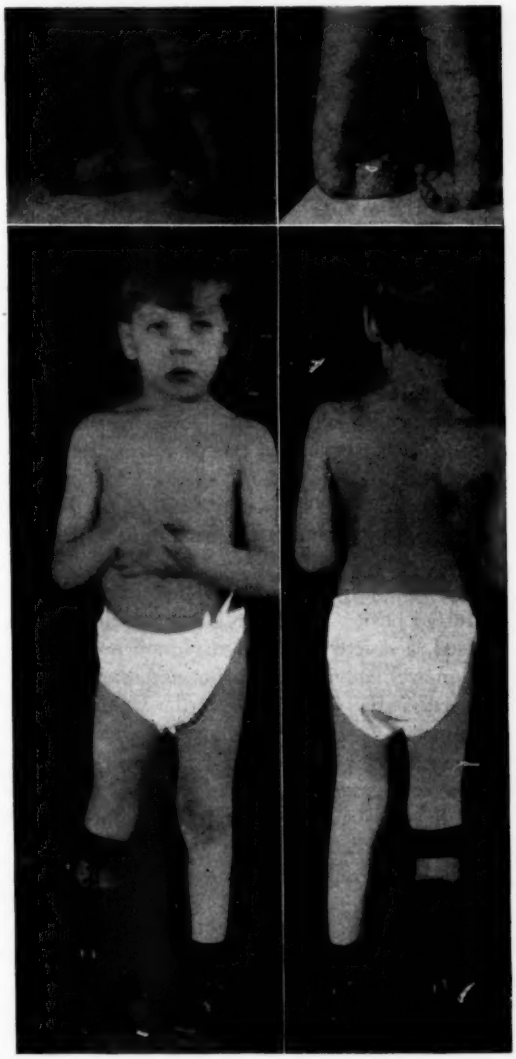

Fig. 6. Typical club feet improved by simple procedure, wearing side iron brace with outer edge of shoe thickened, right foot.

formity, it is usual that contraction of the soft parts is found. The contracted tendo achillis group of muscles is the factor to be overcome in the equinus deformity. This contraction is relieved by the subcutaneous method of tenotomy and myotomy. The contracted group is divided high up near the junction of the muscle and the beginning of the tendon. Tension is maintained while the tenotome saws the muscle and tendon in several places.

The plantar fascia may tend to prevent correction of the equinus and varus and again by subcutaneous incision with tenotomy just anterior to the insertion on the os calcis, the fascia is lengthened.

Only rarely are the flexor tendons of the toes lengthened by subcutaneous section near the base of toes.

The foot is gently manipulated into an overcorrected position. No great manipulative force is used, and extreme overcorrection and manipulation are inadvisable and not necessary.

Sterile gauze is placed over the wounds, sheet wadding or a stockinette is applied and a plaster dressing which is worn for six weeks. The plaster cast extends from the base of the toes to three inches above the knee, the foot being held in an overcorrected position of calcaneus valgus.

Weight bearing is encouraged two weeks after the operation.

A second plaster is applied from the toes to the knees and worn for four weeks. Weight-bearing and walking are encouraged and the foot still held in calcaneus valgus position.

After removel of the second cast, a walking apparatus, with a wedged shoe and, if the muscles are weak, a side iron brace, is used with continued massage, manipulation and exercise. Creeping is prohibited because of tendency to cause torsion of the tibia.

Observation of a case is important and the child is seen at six-weeks to two-months intervals until the age of two or assurance that the deformity is remaining corrected.

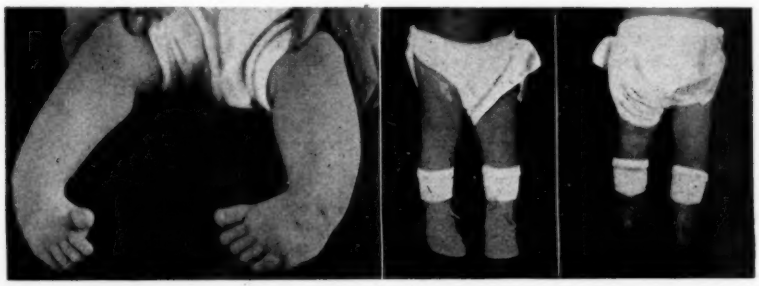

Fig. 7. First view—typical club feet. Second and third views—application of wedged shoes when child begins to walk.

The infant with marked bony defects obvious to external and X-ray examination is only the rare case and not in the usual class under discussion in this paper, but is in my experience best treated by this harmless method, prolonging the bony operation until the child is of such age that the least possible damage is done to bone and soft parts by operation necessary to correct such deformity.

Under no circumstances is the infant dismissed as cured until after the foot has been used for walking several months. Walking or weight-bearing is not allowed until the foot is in a normal, overcorrected position, as weight-bearing with the foot in proper position causes change in the bones and shape of bones not possible to obtain in any other manner and is most important in perfecting the cure.

With certain other methods where forced manipulation and early operation require absolute retentive apparatus, it is not possible to remove the apparatus for daily manipulation from the time of operation until after the weight-bearing age.

Coincident with long continued absolute retentive apparatus, marked atrophy, inability to use muscles, and loss of motion are the usual results: while by the method described, absolute retentive apparatus is used only during the first ten weeks of weight-bearing and avoids in the great-

er part marked changes and disability as the result of the methods just mentioned.

The successful treatment of club foot is not easy and the fact that its routine is not well understood is evidenced by numerous examples seen not only at public and state institutions, but

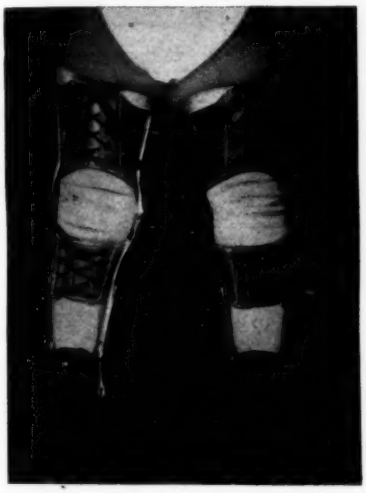

Fig. 8. Typical braces with joints at knee and ankle, used when torsion of the tibia is marked.

in private practice, where deformity, marked atrophy, disability, limited motion, scars, contracted bands and pressure sores with the usual history of radical operations and severe manipulation even in the first few weeks of life, with history of long continued retentive apparatus as the causative factors in the poor and characteristic end-result.

I submit this simple method well knowing if faithfully carried out by surgeon and parent, at least it is a method that has, in my experience, proved most satisfactory without the possibility of the above named common experiences which usually hinder the average chance of a good functional result.

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A STUDY OF THE INCIDENCE OF AURICULAR FIBRILLATION*

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AURICULAR fibrillation (delirium cordis, or pulsus irregularis perpetuus, total irregularity, or irregular irregularity) continues to be the most frequent of the significant forms of cardiac arrhythmia.

A study has been made of the records of 1,045 consecutive cases of auricular fibrillation, to ascertain the incidence of the etiologic factors or the conditions commonly and remotely associated with auricular fibrillation. To all intents and purposes these conditions may be considered etiologic. The diagnosis of auricular fibrillation has been made by means of the electrocardiogram in each instance. In most of these cases the fibrillation was chronic. A small proportion of the patients had intermittent auricular fibrillation; this was especially true of those who had hyperthyroidism.

It will be noted, in Table 1, that chronic rheumatic endocarditis with mitral stenosis was the clinical diagnosis most commonly associated with auricular fibrillation. That held true if exophthalmic and adenomatous goiter with hyperthyroidism each was listed under a separate head, and if coronary and hypertensive heart disease each was put in a different group. However, if exophthalmic goiter and adenomatous goiter with hyperthyroidism were classified together under one head, and if hypertension and coronary heart disease were listed under one head, chronic rheumatic endocarditis with mitral stenosis came third in the list (Table 2). Considered from this viewpoint, hypertensive and coronary heart disease heads the list of causes of auricular fibrillation, or of conditions associated with it, with a frequency of 33.9 per cent. Hyperthyroidism was a close second, with 32 per cent and chronic rheumatic endocarditis with mitral stenosis came third with 22 per cent. In Table 2 it will be noted that hypertensive and coronary heart disease taken together, hyperthyroidism, and chronic rheumatic endocarditis with mitral stenosis were the three most common causes of auricular fibrillation. Next in frequency came a group of cases in which the etiology could not be determined. In this group there were eighty-one cases, in sixty-one of which there were cardiac symptoms, and in twenty, no cardiac symptoms other than irregularity. A few of the patients whose cardiac action was irregular were not even aware of it. Cardiac symptoms, when present, were in some cases very mild; in others, they were those of severe congestive failure.

The remaining classifications in Table 2 are self-explanatory. However, concerning the ninth classification: it is generally known that auricular fibrillation is a relatively rare accompaniment of cases of subacute bacterial endocarditis. Why this should be is not explained. One would naturally expect it to occur commonly, because a relatively large number of cases of subacute bacterial endocarditis is engrafted on old, especially on mild, chronic rheumatic endocarditis with mitral stenosis, and auricular fibrillation is frequently associated with chronic rheumatic endocarditis with mitral stenosis; in fact, auricular fibrillation accompanies this condition in the highest relative incidence, as will be seen when Table 3 is analyzed.

It appears, from Table 2, that coronary and hypertensive heart disease, hyperthyroidism, and chronic rheumatic endocarditis with mitral stenosis are the three most common causes of auricular fibrillation. But this table was constructed on a basis of consecutive cases of auricular fibrillation seen at the clinic. However, more cases of hypertension and coronary disease were seen than were seen of cases of hyperthyroidism, and so on. It was desired to determine the actual proportion of cases of hypertensive and coronary disease, of hyperthyroidism, of mitral stenosis, and so forth, in which auricular fibrillation would be found. Therefore, a group of 100 cases of chronic rheumatic endocarditis with mitral stenosis, taken consecutively as the patients concerned registered at the clinic, was studied (Table 3). In a small proportion of them, necropsy was performed. There were

*From the Section on Cardiology, The Mayo Clinic, Rochester, Minnesota. Submitted for publication March 1, 1932.

TABLE 1

RELATIVE INCIDENCE OF ETIOLOGIC DISEASES IN 1,045 CASES OF AURICULAR FIBRILLATION

	Incidence	Per cent
1. Chronic rheumatic endocarditis with mitral stenosis	230	22.0
2. Exophthalmic goiter	174	16.0
3. Coronary disease alone	168	15.0
4. Adenomatous goiter with hyperthyroidism	161	15.0
5. Hypertensive and coronary heart disease	105	10.0
6. Hypertensive heart disease alone	82	7.8
7. Indeterminate*	81	7.7
8. Pericarditis	16	1.5
9. Chronic rheumatic endocarditis with aortic stenosis	9	0.8
10. Aortic insufficiency (rheumatic)	9	0.8
11. Syphilitic aortitis	8	0.7
12. Subacute bacterial endocarditis	2	0.019
Total	1,045	

*The diagnosis was auricular fibrillation, but the etiology was undetermined.

TABLE 2

RELATIVE INCIDENCE OF ETIOLOGIC DISEASES IN 1,045 CASES OF AURICULAR FIBRILLATION*

	Incidence	Per cent
1. Hypertensive and coronary disease	355	33.9
2. Adenomatous goiter with hyperthyroidism and exophthalmic goiter	335	32.0
3. Chronic rheumatic endocarditis with mitral stenosis	230	22.0
4. Indeterminate	81	7.7
5. Pericarditis	16	1.5
6. Chronic aortic endocarditis with aortic stenosis	9	0.8
7. Chronic rheumatic aortic endocarditis with aortic insufficiency (rheumatic)	9	0.8
8. Syphilitic aortitis	8	0.7
9. Subacute bacterial endocarditis	2	0.019

*Items 3, 5 and 6 of Table 1 combined as item 1 of this table; items 2 and 4 of Table 1 combined as item 2 of this table.

twenty cases of auricular fibrillation. In a study of another series of forty-nine cases of chronic rheumatic endocarditis with mitral stenosis, in all of which necropsy was performed, auricular fibrillation occurred in twenty cases (40 per cent). I think the difference between twenty and forty is about what would be expected, because the longer any cardiac disease exists, and the more severe it is, the more likely it is that fibrillation would occur. A patient who has come to necropsy obviously has had the disease for the maximal time that is compatible with life for him. This is probably why the frequency of auricular fibrillation in the forty-nine cases in which necropsy was performed was twice as high as in the group of 100 cases, in few of which necropsy was performed.

In a group of 205 cases of adenomatous goiter with hyperthyroidism (Table 3), selected and studied the same way, it was found that auricular fibrillation occurred in twenty-nine cases (14 per cent). The next group studied was 144 cases of chronic adherent pericarditis; in this group, only cases in which necropsy was performed were used, because of the high percentage of error in the clinical diagnosis of this condition. In drawing conclusions based on a series of cases in which neccropsy was performed with a series in which the data are obtained mainly by clinical means, this fact must be kept in mind. It is to be expected that in the series of cases in which necropsy was performed, the percentage of auricular fibrillation will be higher. There were several cases in which an associated valvular disease existed, especially mitral stenosis. This, too, would probably account for the high proportion of cases of auricular fibrillation. These two reasons—that necropsy was performed and that mitral endocarditis and mitral stenosis were associated—probably explain why this group comes third in Table 3. The remaining entries in Table 3 require no comment, except to say that in the 113 cases of pericarditis with effusion, necropsy was performed in each case.

In Table 3, it will be noted that the incidence of auricular fibrillation among patients who had

TABLE 3

INCIDENCE OF AURICULAR FIBRILLATION IN CONSECUTIVE CASES OF DISEASES WHICH MAY CAUSE AURICULAR FIBRILLATION

Diagnosis	Cases	Auricular fibrillation	
		Incidence	Per cent
Chronic rheumatic endocarditis with mitral stenosis*	100	20	20.0
Adenomatous goiter with hyperthyroidism	205	29	14.0
Chronic adhesive pericarditis**	144	18	12.0
Aortic stenosis	100	8	8.0
Exophthalmic goiter	203	10	4.9
Aortic insufficiency (rheumatic)	100	4	4.0
Syphilitic aortitis	100	4	4.0
Hypertensive heart disease	100	4	4.0
Pericarditis with effusion	113	4	3.5
Coronary sclerosis	100	3	3.0
Congenital heart disease	100	2	2.0
Subacute bacterial endocarditis	100	1	1.0

*In another series of forty-nine cases in which necropsy was performed auricular fibrillation occurred twenty times (40 per cent).

**Necropsy performed in all cases.

TABLE 4

INCIDENCE OF AURICULAR FIBRILLATION IN CASES REPRESENTING A PARTICULAR AGE GROUP

Diagnosis	Cases	Age-group	Auricular fibrillation	
			Incidence	Per cent
Adenomatous goiter with hyperthyroidism	50	50–60	7	14
Exophthalmic goiter	50	50–60	5	10

adenomatous goiter with hyperthyroidism was almost three times as high as that among patients who had exophthalmic goiter. It was believed that the reason for this was that adenomatous goiter with hyperthyroidism generally occurs among people who are older than those who have exophthalmic goiter. Older people are more likely to have fibrillation from any given cause than are younger persons. Consequently it would be expected that the incidence of auricular fibrillation would be higher in older persons who had either adenomatous goiter or exophthalmic goiter. To determine if this were true, I took a group of fifty cases of adenomatous goiter with hyperthyroidism among patients fifty to sixty years of age (Table 4) and compared the incidence of auricular fibrillation in this group with that in the correspoding group recorded in Table 3. The percentage incidence in the two groups was the same. The reason presumably was that the patients with adenomatous goiter with hyperthyroidism recorded in Table 3 tended to be elderly. However, when a like comparison was made between the corresponding groups of patients who had exophthalmic goiter, the incidence of auricular fibrillation in the group of fifty (Table 4) was found to be considerably higher than that in the group recorded in Table 3. The reason probably was that the patients with exophthalmic goiter who are represented in Table 3 tended to be much younger than fifty to sixty years. It would appear (Table 3) that auricular fibrillation is associated with adenomatous goiter with hyperthyroidism in a higher incidence than it is with exophthalmic goiter. It is believed as has been indicated that this is true mainly because adenomatous goiter with hyperthyroidism tends to afflict older persons than does exophthalmic goiter. There is another factor which possibly may influence this high incidence of auricular fibrillation in association with adenomatous goiter, and that is that patients with adenomatous goiter with hyperthyroidism probably have had their hyperthyroidism continuously over a longer period before they were operated on than patients with exophthalmic goi-

ter, because exophthalmic goiter, as a rule, is a more urgent condition.

The incidence of auricular fibrillation found in this study has varied somewhat from that of other workers, although the results obtained compare fairly closely with those of McEachern and Baker. In their study they found that rheumatic heart disease constituted the largest single group of cases, with a percentage of 34.4, but they classified hypertension and arteriosclerosis under separate heads. Hyperthyroidism constituted only 7.5 per cent of their series, whereas it accounted for 32 per cent of my series.

SUMMARY AND CONCLUSIONS

In a series of 1,045 consecutive cases of auricular fibrillation, the associated or causative conditions which occurred in highest incidence were hypertensive and coronary heart disease (Table 2). The incidence of this combined condition was represented by 33.9 per cent. Hyperthyroidism occurred second in frequency, with 32 per cent. Mitral stenosis (mitral endocarditis with stenosis and insufficiency) occurred third in frequency, with a percentage of 22. However, among consecutive cases of diseases which are known often to be accompanied by auricular fibrillation, mitral stenosis (mitral endocarditis with stenosis and insufficiency) was found to be accompanied by auricular fibrillation in higher proportion than any of the other diseases (Table 3).

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ANGINA PECTORIS: HISTORY, ETIOLOGY AND MECHANISM*

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ANGINA pectoris has been afforded the distinction of being considered a disease by some observers and a symptom by others. Owing to the fact that angina pectoris comprises a group of symptoms and results from several pathologic processes, present-day nomenclature has designated the term anginal syndrome, as descriptive, but whenever possible the name of the etiologic disease is used. For example, one speaks of the anginal syndrome due to coronary sclerosis, or the anginal syndrome due to atresia of the coronary orifices secondary to syphilitic aortitis. By this practice the diagnosis of cardiac diseases is made with much greater accuracy and comprehensiveness.

The scope of this paper does not permit detailed consideration of the historic background of angina pectoris, and therefore only some of the most important contributions will be mentioned, which in reality are landmarks in the progress of knowledge of this condition. In 1700, Drelincourt recorded what appears to have been the first recognition of coronary sclerosis, and three years later Bellini associated myocardial disease with coronary sclerosis. In 1768, Heberden wrote his description of the anginal syndrome so accurately and completely that it stands today as a masterpiece. In 1794, John Hunter described the disease which afflicted him in a manner possible only to one who had experienced the pangs of angina pectoris. In 1799, Parry, a contemporary of John Hunter, recognized coronary sclerosis clinically. Parry was intimately associated with John Hunter's physician, Jenner. In 1815, Hodgson called attention to the relationship of sudden death to coronary disease. In 1827, Adams described what certainly was cardiac infarction, but apparently he did not appreciate its cause or origin. In 1850, Creveilhier gave the first comprehensive review of coronary thrombosis and cardiac infarction. In 1889, Huchard presented a dissertation on angina pectoris, and reviewed the current historical theories. He related angina pectoris to coronary disease and to aortic disease. In 1896, Dock was the first observer in America to describe coronary thrombosis, and in 1912, Herrick clearly described the condition and re-

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ported the case of a patient who recovered. In 1914, Mackenzie emphasized the part played by the coronary arteries in angina pectoris, and called attention to fatigue of the heart muscle in the causation of the attacks. In 1915, Allbutt refuted the hypothesis that coronary disease is a cause of angina, and was of the opinion that the aorta was solely concerned. He believed that irritation of the nerve endings in the adventitia, particularly of the first portion of the aorta, was the cause of the painful seizures.

This hypothesis for a time received widespread recognition, but in succeeding years attention has been directed, again, to the coronary circulation.

ETIOLOGY

The anginal syndrome is preëminently identified with coronary arterial disease. Sclerosis of the coronary arteries is the pathologic process most commonly encountered, and is virtually limited to the larger branches. The involvement may be extensive or localized with formation of plaques; it may be obliterative, or it may permit the arteries to remain relatively patent.

Coronary thrombosis and embolism are virtually always accompanied by the anginal syndrome; the pain is more severe and of longer duration and secondary phenomena occur that are absent under other conditions. This fact makes untenable the arguments against the hypothesis that coronary disease is etiologic.

Atresia of the coronary orifices associated with syphilitic aortitis is usually attended by the anginal syndrome. Stenosis of the aortic valve and orifice frequently is attended by painful cardiac seizures, subjectively indistinguishable from those occurring in the course of coronary disease. Narrowing of the aortic orifice renders the coronary circulation imperfect, although the coronary arteries may be normal structurally. Rarely, large vegetative lesions of subacute bacterial endocarditis of the aortic valve may impinge on the coronary orifices and be the cause of the anginal syndrome.

Severe anemia, primary or secondary, may result in imperfect nutrition of the heart and the physiologic counterpart of coronary disease is produced. In certain cases, severe and prolonged paroxysmal tachycardia is attended by the anginal syndrome. Extreme cardiac acceleration is accompanied by a diminished volume output per beat and in attacks of great acceleration, both systolic and diastolic blood pressure fall. The drop in diastolic pressure may be considerable, and it may be impossible constantly to maintain adequate coronary circulation.

The anginal syndrome, then, is primarily dependent on absolute or relative insufficiency of the coronary circulation, as has been noted. When the coronary circulation becomes insufficient, anoxemia of the myocardium occurs, and is one of the significant factors in cardiac fatigue. Associated metabolic disturbances are not definitely understood.

Spasm of the coronary arteries as a cause of the anginal syndrome received considerable attention at the beginning of the present century, and although its existence, and the possibility that it is causal in certain cases cannot be denied, doubt must still be held concerning it.

The mechanism whereby myocardial anoxemia influences the nerve endings to produce pain is not clearly understood, but probably is similar to the production of cramp in voluntary muscles during fatigue.

After the onset of the initial anginal attack, the nervous mechanism appears to become sensitized, so that an arc of abnormal distribution of stimuli becomes established. In the spinal cord a region becomes irritable, which under normal conditions has not been particularly irritable; it may become highly sensitive, in a manner similar to that in which certain portions of the lumbar part of the spinal cord become irritable in normal subjects.

A sensitive, nervous constitution appears to be significant in determining not only the occurrence but the continuation of the anginal syndrome.

TREATMENT OF ASTHMATIC BRONCHITIS WITH IODIZED OIL*

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WHILE the treatment of bronchial asthma due to extrinsic causes is theoretically a matter of removing the offending cause, or of specific desensitization, experience has shown that there is a large group of individuals who do not yield to such treatment or in whom such causes cannot be found. This group includes the cases of so-called "bacterial asthma" or of "asthmatic bronchitis" in which bacterial invasion of the bronchial tree has occurred. Progression from simple asthma to asthma complicated by infection, with bronchitis and emphysema, is not uncommon.

Rackemann[1] states that bacteria can produce asthma in three ways: (1) through a definite allergic effect without reference to other allergens; (2) by modifying sensitiveness to other allergens so that symptoms are produced following exposure to them; and (3) by intensifying the attack of asthma which has started from any cause.

In this group of cases of asthmatic bronchitis are those whose asthma occurs after some acute respiratory infection and is not related to any change in environment or manner of living. The amount of secondary infection may be determined from the cough, sputum, and wheezing present between attacks. The sputum is likely to be thick and purulent in severe cases. Cough is quite marked at the onset of the attack, as contrasted with uncomplicated asthma in which it is present only at the end of a paroxysm.

Various measures of non-specific therapy, such as the use of expectorants, autogenous vaccines, ultra-violet irradiation, X-ray therapy, surgical removal of the sympathetic ganglia, and bronchoscopy with local applications, have been tried with varying results.

The instillation of iodized oil into the bronchial tree as a method of diagnosis and treatment in cases of bronchitis and bronchiectasis has been carried out by Ochsner[2] in more than 1,500 cases, and he has found evidence of some degree of bronchial dilatation in over 90 per cent of these. He found that the iodized oil was of distinct therapeutic value in these cases. The number of organisms in the sputum as determined by actual count was found to decrease progressively. The tendency of lipiodol to cause rapid healing has also been noted in cases of empyema by Ransohoff and Heiman,[3] who injected lipiodol into the residual cavity after treatment of empyema by aspiration drainage and Carrel-Dakin instillations. Similar results were found when it was injected into the seminal vesicles by Belfield and Rolnick.[4]

Caulfield[5] in a similar way has injected gomenol, an essential oil extracted from the Melaleuca plant, in cases of asthmatic bronchitis with definite benefit in 15 out of 17 cases.

I wish to report here two cases of asthmatic bronchitis in which the administration of lipiodol by the passive method has proved of distinct benefit. The method, as described by Ochsner, consists of the production of sensory anesthesia of the anterior tonsillar pillars so that the swallowing reflex is abolished and, after the introduction of a 10 per cent procaine solution as an anesthetic to the tracheobronchial mucosa, the iodized oil is taken on the back of the tongue and enters the pharynx. With the patient in the upright position, it then goes through the superior laryngeal orifice into the trachea. This procedure is probably best carried out by a laryngologist as it was in these cases. The technic, however, is not difficult.

Case 1.—K. W., an unmarried female, age 33, was first seen on October 31, 1927. She had had attacks of bronchitis since childhood and in the past ten years had had numerous asthmatic attacks. In the intervals between attacks she raised moderate amounts of thick sputum. The tonsils had been removed. Physical examination showed a marked emphysema and findings typical of asthmatic bronchitis. Blood pressure was 122/80. X-ray films of the chest were negative. Skin tests showed her to be slightly sensitive to horse dander, rabbit hair, and dog hair. Urinalysis was negative. Sputum specimens showed mixed infection. Diagnostic puncture of the maxillary sinuses showed

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no evidence of infection. Dental X-ray films showed one devitalized tooth.

Treatment consisted of the following measures: (1) removal of the devitalized tooth, and (2) administration of an autogenous vaccine prepared from organisms found in the sputum. There was no improvement following this and she suffered from much fatigue and wheezing between the attacks of asthma.

On October 3, 1929, lipiodol was injected into the right bronchial tree. Fluoroscopic examination immediately afterward showed a slight cylindrical dilatation of the bronchi. The injection was repeated on the opposite side a few days later with some difficulty because of coughing and bronchospasm, but this was overcome by the administration of adrenalin hypodermatically. Lipiodol injections were repeated in April and June, 1930.

Since the iodized oil was first injected, the patient has reported only one mild attack of asthma and a few mild attacks of upper respiratory infection. Her sputum has greatly diminished in amount. She has resumed her occupation at full time. Although she still has some dyspnea on moderate exertion, she feels greatly improved.

Case 2.—A male, aged thirty-seven, was first seen February 20, 1928. At various times he had had dermatitis from exposure to primrose. His first attack of asthma occurred in June, 1927, following a respiratory infection. Attacks recurred at intervals of a few months and he had some cough, sputum and shortness of breath between attacks. Physical examination showed a well-developed man with emphysematous chest and coarse râles scattered throughout the lower chest. The tonsils were enlarged and cryptic. Heart tones were normal. The blood pressure was 130/70. Skin tests showed slight positive reaction to cheese, salmon, and horse dander. The sputum showed mixed infection. The blood count was normal throughout except that the differential count showed 7 per cent eosinophiles. The urine was normal. X-ray films of the chest were negative. Irrigation of the maxillary sinuses showed definite evidence of infection and the sinuses were irrigated repeatedly for this. The tonsils were removed.

As the patient showed only temporary improvement following these procedures, it was decided to instil lipiodol into the bronchi and this was done in January, 1930. The injection was repeated in August, 1930, November, 1930, and in March, 1931. X-ray films taken of the chest after the lipiodol instillation showed slight cylindrical dilatation of the bronchi but no evidence of bronchiectasis.

Following the injection he reported much improvement, with great diminution in the number of attacks of upper respiratory infection and asthma. While he is not entirely relieved of his bronchitis, he is nevertheless greatly improved.

These two cases are reported because it is felt that the instillation of iodized oil into the tracheobronchial tree was of marked benefit in them.

It is recognized that in asthma there are many instances of improvement or cure without any appreciable treatment, but I believe that in these cases the lipiodol had a definite effect on the bronchial infection and consequently on the number of asthmatic attacks.

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INULIN

Inulin is a polysaccharide carbohydrate that resembles starch. It occurs in plants as a reserve carbohydrate in a few species that are edible. Foremost is the so-called Jerusalem artichoke, Helianthus tuberosus. Years ago attempts were made to feed Jerusalem artichokes to patients with diabetes because it had been found that the sugar output was not increased thereby. The assumption from such observations, however, that inulin can be utilized satisfactorily by the diabetic patient is by no means justified from such data. Obviously, any carbohydrate that cannot be readily digested would fail to be absorbed and accordingly fail to increase the sugar output. Despite the scientific evidence tending to diminish the probability of successful application of inulin-bearing plants to human nutrition, a number of capable investigators have concluded that Jerusalem artichokes actually improve the tolerance of patients as well as supply some energy that is directly utilized in the diabetic metabolism. Recent investigators believe that the reputed therapeutic value of Jerusalem artichokes in the diet of the diabetic patient, reported frequently by physicians from their personal experience, is based too often on uncontrolled observations and is a result both of over-enthusiasm on the part of the observer and of the tendency of human nature to anticipate results, even at the expense of erroneous conclusions. (Jour. A. M. A., February 6, 1932, p. 483.)

TREATMENT OF CHRONIC MORPHINE INTOXICATION

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THE treatment of chronic morphine intoxication is an important matter, for this disease is one of the major medico-social problems of today. The so-called "morphine addict," or as he should more fittingly be termed, "the individual suffering from chronic morphine intoxication," is met with by every practitioner of medicine; how often one does not know, for it is not necessary that the patient exhibit pin point pupils, tremor of the hands, sallow complexion and moral degradation, and in fact often the closest scrutiny fails to bring to light any one of these symptoms. However, the number of those who apply for treatment of this disease, coupled with those in whom the illness is recognized during examination for other complaints, is considerable.

In the treatment of chronic morphine intoxication, I feel there are four important considerations: (1) The proper attitude of the physician and the patient toward one another; (2) discontinuance of the drug; (3) convalescence in the hospital; and (4) care after discharge from the hospital.

The feeling of the physician in regard to the condition is all important, for out of this grows his reaction to the patient, and from it, to a large extent, evolves the patient's attitude toward both the doctor and his illness.

During recent years a great change in feeling on the part of the physician in regard to "morphinism" has occurred. Where formerly it was generally regarded as a "vice" or "habit," it is now increasingly being recognized as a functional disease. If even a large minority of so-called "addicts" discontinued the use of the drug unaided, through their own efforts, one might rightly hold the majority responsible for not doing likewise, but less than one-fifth of one per cent accomplish this task. The logical explanation of this fact lies in the peculiar properties of the drug which affects the body and mind of the user in such a manner that attempts at discontinuance lead to extreme physical and mental suffering. The depression and mental anguish are intense and horrible in themselves, but moreover, they leave the user in no condition to bear physical pain. This functional disease involves the nervous system primarily, but the glandular system and metabolism are affected as well.

With this knowledge in hand the physician can now approach the problem from a sound point of view. He no longer considers the individual constitutionally inferior, a degenerate, or a potential criminal, but rather the victim of a disease. That this is the proper attitude is borne out by the facts that users are of all ages and of both sexes, and that this condition is not restricted to any social, economic, or intellectual group.

The attitude of the patient toward the doctor must be one of absolute confidence. Nothing engenders this more than a kindly, sympathetic, understanding, yet firm, manner on the part of the medical advisor. The patient must look at his condition as a disease that can be and must be overcome by a thorough coöperation with the physician and a resolute determination upon his (the patient's) part to get well.

With the above in mind, we will pass to a consideration of discontinuance of the drug. There are two general ways of accomplishing this, either by the substitution method or the systematic withdrawal method. The former, consisting of the substitution of cocaine, codein, heroin, opium, or the like for the morphine, has on the whole been abandoned, since the substitution remedies often lead to a new habit which is frequently added to the old. The latter, consisting of systematic withdrawal of the drug under the strictest supervision, is now practiced almost exclusively.

There are three chief ways by which systematic withdrawal may be accomplished. The oldest of these is the gradual withdrawal method, and a few still defend this process in a modified form. It consists of a very gradual reduction in the daily dose of morphine with palliative treatment of the accompanying symptoms. Its advantages are none, while its disadvantages are the exceedingly difficult task of controlling the

patient so that he can not secure the drug secretly, prolongation of the abstinence symptoms, and prolonging the total period of treatment.

In 1875, some years after the introduction of this first method, the abrupt withdrawal method was described by Levenstein. This process consists of first placing the patient in strict confinement in an especially equipped hospital with reliable private day and night nurses in constant attendance, and then withdrawing the morphine in its entirety at a single stroke. This procedure has two points in its favor—certainty of success (as to discontinuance of the drug), and rapidity of accomplishment, but the fact that it can be practiced only in special hospitals and, more important still, the ever present danger to life by cardiac collapse offset these advantages.

The rapid withdrawal method introduced by Erlenmeyer in 1883 has had many modifications, and in its various forms is the most common system in use today. The literature contains an unusual number of modifications of Erlenmeyer's treatment, but all embody the same principles, namely, removal of the drug over a period of several days and treatment of the accompanying abstinence symptoms followed by a period of recuperation in the hospital. No attempt will be made to discuss these various modifications in this paper.

The following is an outline of the plan used by us (Riggs, Hengstler, and Gardner) for securing discontinuance of the drug. One cannot prescribe a cut and dried rigid routine schedule for the withdrawal of the morphine, but a general plan may be presented which has proved very satisfactory in our experience.

The patient, having evidenced a firm desire to get well, and an understanding of the attitude of physician or physicians in charge of the case toward himself and his disease, is placed in a hospital. He is isolated from friends and family with absolute restriction of visitors of any kind, and is not allowed to send or receive telephone messages, notes, or mail. His clothes, including his night clothing and bathrobe, are surrendered by him and thoroughly searched, as in his person. Withdrawal proper is then begun, either after a preliminary observation period of twenty-four to forty-eight hours or if there are no contraindications on physical examination, at once. If the physical condition is such that withdrawal seems risky, time for general physical upbuilding must be allowed.

The time for beginning of reduction having been determined, the patient is placed upon a dosage of about one-half the amount of morphine by hypodermic that he states he has been taking, or that observation has shown necessary to maintain his sense of well being. It seems best that this be given in divided doses at a definitely scheduled time, for instance at 6:00 and 10:00 a. m., and at 2:00, 6:00 and 10:00 p. m. The amount of morphine given at each of these hours is not the same, although the amount of solution in the hypodermic is kept constant. The late evening injection is the strongest, to help in securing a good night's rest; the early morning dose next in potency, the early afternoon hypodermic of about the same strength as the first morning dose, and the remaining two injections containing a still smaller amount of the drug. For example, if the average daily dose has been six grains per day, the total given on the first day of withdrawal would be three grains divided as follows: at 6:00 a. m. ¾ grain; at 10:00 a. m. ¼ grain; at 2:00 p. m. ½ grain; at 6:00 p. m. ¼ grain; and at 10:00 p. m. 1¼ grains. On the second day this amount would again be reduced by one half, *i.e.*, to 1½ grains. Each of the five injections is not reduced in strength by the same amount, but rather the relative size of the dose is kept the same, *i.e.*, the late evening dose is the strongest and the early morning injection next in strength as on the previous day. Each day the amount of morphine is reduced by one half of the previous day's total until within a period of several days all the morphine has been discontinued.

As the morphine is reduced, abstinence or withdrawal symptoms begin to appear. It often will not be necessary at first to confine the patient to his bed, but as discontinuance proceeds, it will be necessary to do so and he may even require restraints before the task is completed. Abstinence symptoms occurring with this process vary in degree with the individual case. They are briefly: restlessness, irritability, pain, nausea, and occasional vomiting, and in some instances signs of circulatory embarrassment, but almost never signs of threatened collapse. As the restlessness, irritability and pain appear and increase in intensity, sedatives are administered in the

form of bromide, sulphonal, trional and luminal, including sodium luminal by hypodermic. Analgesics other than opium and its derivatives, and occasionally combined analgesic sedative preparations such as allonal or cibalgine are also used. Free catharsis, but not drastic purgation, is secured. Ice and ice cold drinks help relieve the nausea and vomiting. In case of cardiac embarrassment the usual supportive treatment is used and if collapse be feared morphine is given by hypodermic at once. By the use of these therapeutic agents, the patient is kept quiet and relatively comfortable.

As reduction proceeds, the 10:00 a. m. and 2:00 p. m. morphine injections may soon be replaced by sterile normal saline, or opportunity is here presented to give part of the necessary sedation by hypodermic in the form of sodium luminal. After several days none of the injections will contain morphine, the last to be substituted by placebo, or sodium luminal being the bedtime injection. At the time of withdrawal of the last morphine, a large amount of sedatives will be found necessary. It is to be noted that many times the final withdrawal precipitates a psychosis of the Korsakow's type, in which the patient, although confined to his bed, makes journeys from the hospital, oftentimes long complicated trips, especially at night, is disoriented and is often quite noisy. At this time it may be necessary to place the patient in the mental department of the hospital or to secure a private nurse for a short time. This mental condition always clears up entirely and usually is of only a few days to a week in duration, although it occasionally persists for a longer time. Some writers have attributed this psychosis to the sedatives used rather than to the withdrawal of the drug, but, in our opinion, it is due to the latter.

This is the general plan but it is not to be thought that this must be adhered to rigidly. At times, on any given day, it may be possible to substitute a placebo for a regular morphine hypodermic, or again it may be necessary to increase the strength of a previously scheduled injection; or in event of threatened collapse which almost never occurs with this method an additional injection of the drug may have to be given. The schedule may usually be picked up again in the last mentioned case, but occasionally the total amount may have to be increased and reduction continued again on a new schedule. It is best to make the schedule day by day in accordance with the condition of the patient. The advantages of the method outlined are: certainty of success as to discontinuance of the drug, as isolation of the patient precludes access to morphine; freedom from danger, as it is extremely seldom that collapse threatens the patient's life; and shorter duration of the abstinence symptoms, leaving a longer period for convalescence.

The withdrawal or discontinuance of the drug having been accomplished, the less difficult part of the treatment has been finished, for the convalescent period in the hospital and the care after discharge are most difficult to carry to a successful outcome. As to the convalescence in the hospital the following may be said. Mere withdrawal of the drug means nothing. It is necessary that a proper physical and mental condition be reached by the patient during his stay in the hospital if lasting results are to be obtained. How long a period this will require one cannot state beforehand, but as an average time one might suggest twelve to sixteen weeks, While it is true that at the end of six or eight weeks, the physical condition is satisfactory, the body weight is at a peak and normal sleep as a rule has returned, psychically the patient is not able to withstand all the influences of life outside the hospital without recourse to morphine. For example, he is not, at this time, ready to do regular mental work requiring concentration, for he lacks both power to concentrate and endurance. Gradually, ability to apply himself and to do mental work returns.

During the convalescent period the normal activities which have been discarded while the individual has been using the drug must now be resumed gradually. Regulated exercise, occupational therapy, and supervised social activities are introduced. Psychotherapy, through appeal to all the normal inclinations, for the purpose of barring the road to an eventual return of the demand for the drug, is brought to play. Reasonable regard for the preservation of his health is of considerable value, but this alone will not suffice for he knows that morphine allays bodily discomfort. Awakening of normal emotional response to family and society, as well as rebirth of a personal honor and desire to be a useful

human being are of much greater value. Finally the patient must be led to develop real faith and confidence in himself.

Normal physical strength and endurance having returned, natural sleep having again appeared, power of concentration and reserve energy for mental activity being present, normal social activities having been resumed, and all physical and psychical desire for the drug having disappeared, the patient is discharged from the hospital. As previously stated, one cannot judge beforehand how long this convalescent period will last, for each case is a problem in itself.

The prognosis in chronic morphine intoxication is at best not very favorable, relapses occurring in a large percentage of cases. Proper care after discharge from the hospital is the greatest help in preventing a relapse, but unfortunately the doctor comparatively seldom has the opportunity to carry out this much needed part of the treatment.

The physician should remain in contact with the patient and the complete confidence already established in the medical adviser must be maintained at all times. After several months of close supervision, regular work is gradually resumed by the patient. The old environment must be avoided where this leads to contact with the drug, namely, in all those cases in which the drug had not been secured through truly legitimate channels. The doctor must concentrate on the development of the patient's personality and individuality, having him continue the normal activities instituted during the convalescent period in the hospital. If possible the patient should develop and follow a hobby; if a person engaged in a manual occupation, preferably some activity requiring mental effort chiefly; if one engaged in a profession or occupation the essential requirement of which is mental effort, a hobby the basis of which is physical activity, such as golf, cabinet work, or the like, should be encouraged. The individual should avoid being alone and overexcitement and overwork must be excluded.

Above all, should the patient become irritable, depressed or fatigued, he should at once report to his physician. Finally there must be a constant willingness on the part of the physician to aid the patient at times of weakness or depression, for then is when relapse is especially threatened.

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THE PRESENT STATUS OF INDICATIONS FOR RENAL SYMPATHECTOMY*

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RENAL sympathectomy is becoming increasingly more widely practiced and involves many interesting physiological and anatomical problems which have just begun to be investigated. Renal sympathectomy has been advocated in the following conditions:

1. Renal sympatheticotonus.
2. Painful nephroptosis.
3. Nephralgia or renalgia.
4. As a complementary procedure in pelviolithotomy or nephrolithotomy as a prophylactic measure against recurrent stone formation.
5. Certain types of nephritis in which medical management is not satisfactory in controling the advance of the disease.
6. Reflex anuria.
7. In the remaining kidney in patients on whom a nephrectomy for tuberculosis has been performed.
8. In cases of severe hypertension.

With all of these indications, one can readily see what a large problem this subject presents.

The nerve supply to the kidney reaches it through the renal plexus which derives its fibers

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from the splanchnic nerves and the vagi. This plexus surrounds the vessels of the renal pedicle in a plexus-like network and is distributed to the pelvis of the kidney, the vascular network, and the secretory portion of the parenchyma as well as the upper third of the ureter. The effect of the splanchnics on the secretory mechanism of the kidney is supposed to be mainly operative through its vasomotor control. This function of vasomotor control can act so completely that absolute anuria may be the result. When the splanchnic control is interfered with, vasodilation occurs and a definite increase in the excretory function of the kidney results. This last statement has been experimentally demonstrated by a large number of investigators dating back as far as the work of Claude Bernard in 1854. Following sympathectomy, the total amount of urine excreted by a kidney is increased about 25 per cent, with a relative decrease in concentration but an increase in the total amount of solids excreted.

The action of the sympathetics on the motility of the renal pelvis has been very inadequately described and recognized. The action on the motility is that of a tone-control and pace-maker. The sympathetics also contain the pain-conducting fibers from the kidney. The action of the vagus is so incompletely understood that it will not be discussed.

In order to satisfactorily study the function of the musculature of the pelvis of the kidney and ureter, the best means of investigation is pyeloscopy. By pyeloscopy we mean the fluoroscopic observation of the activity of the renal pelvis and ureter following the retrograde injection of a radio-opaque medium into the pelvis. This method was first introduced by Manges as early as 1912, at which time he was using it to insure satisfactory filling of the upper urinary tract before pyeloureterograms were done. Since 1924, when Legueu and his co-workers began using it for observations on the motility of the upper urinary tract, several very valuable contributions have been made on the actual mechanism of the musculature of this tract.

I have been using this method a little over two and a half years and feel that from a diagnostic standpoint it is just as important in examinations of the urinary tract as fluoroscopy in the gastrointestinal tract.

The observation of the effect of drugs on the motility has been carried out by Jona and Flecker, who found by direct fluoroscopic observation that atropin definitely retarded the activity of the pelvis and ureter and produced dilation of the pelvis to such an extent that pain was produced by over-distention, which in turn was relieved by the administration of eserine. They found that morphin, eserine, pituitrin, ergot and strychnin definitely stimulated the motility of the upper urinary tract.

The normal mechanism, as I have considered it to be after numerous observations, takes place as follows: First, the upper calyx of the renal pelvis contracts, expelling a portion of its contents into the funnel or collecting portion of the pelvis. This in turn is followed by contraction of the second and third calyx, depending upon whether it is a bifid or trifid type of pelvis. The funnel portion of the pelvis enlarges to receive these successive charges and then the ureteropelvic junction, which has competently retained the pelvic contents, begins to relax and the funnel itself contracts and expels a portion of its contents down the ureter in the form of a streak. This streak normally is not over one-third of the length of the ureter and is rather uniform in width except for a conical tapering at both ends. This streak moves down the ureter and passes into the bladder, leaving the ureter entirely free of any urine content. In the meantime the calices and pelvis have relaxed in a state of diastole or rest as the calices become filled with newly secreted urine.

The mechanism just described is then repeated. Normally this mechanism can occur coördinately and regularly even though the upper urinary tract is completely severed from all central nervous system connection, indicating that the mechanism of the upper urinary tract is self-contained and self-sufficient for normal functioning.

Harris and Harris, of Australia, were the first observers to describe definite abnormal syndromes which were pain-producing and capable of being relieved by eserine and renal sympathectomy. They called this abnormal group of symptoms "renal sympathetico-tonus" and report 28 cases relieved by renal sympathectomy. This syndrome is characterized by demonstrable spasm in one or several calices or at the ureteropelvic

junction with or without dilation, the reproduction of the type of pain complained of by distention of the pelvis of the kidney, and the relief of this pain by eserine, and, in some cases, accompanying evidence of increased sympathetic irritability in other portions of the body.

In addition to the syndrome of renal sympatheticotonus just described, there are many other variations of hypermotility and hypomotility which I have observed. The effect of the position of a person with ptosis of the kidney on the motility of the urinary tract is also very variable.

Renal sympathectomy for renal sympatheticotonus is, according to Harris and Harris, the proper treatment. I have found, however, in several cases of renal sympatheticotonus that the patient, when relieved by eserine, will not submit to surgery because of the satisfaction experienced in taking eserine.

I have had one patient whose syndrome was entirely different from that described by Harris and Harris in that there was no spasm in any portion of the urinary tract but an extreme hyper-activity of the entire urinary tract so marked that satisfactory pyelograms could not be obtained by the ordinary method of injection. Pyeloscopy demonstrated the upper urinary tract to be normal in contour but extremely overactive. The pain of which the patient complained was also reproduced by distention of the pelvis under fluoroscopic control. Eserine and atropin were both used in this case without any results and he submitted to renal sympathectomy because of my inability to relieve him by any other measures. Three months post-operative he is free from pain. Why this patient has been relieved of pain is speculative because we do not know whether the motility of the urinary tract has been changed or whether the severance of the pain-conducting fibers has produced the result. This can only be determined by follow-up pyeloscopy and the further observation of the patient.

Painful nephroptosis is another controversial subject. There are equally eminent physicians for and against nephropexy for painful nephroptosis. I believe that a better understanding of this problem can be had through the use of pyeloscopy before determining the method of procedure. Every patient with painful nephroptosis that I have observed by pyeloscopy has a different fluoroscopic picture. All have definite retardation in emptying either in the prone or upright position.

Without going into all of the phases of nephroptosis, I wish to say that I believe those who have been most successful in relieving painful nephroptosis by nephropexy have done so because they have either intentionally or unwittingly interfered with the renal plexus during their mobilization before a nephropexy. To support this opinion, I wish to offer the following evidence:

1. Dr. Elmer Hess, of Erie, Pa., has treated a number of cases of painful nephroptosis by renal sympathectomy and allowed the kidney to assume whatever position it would without doing any form of nephropexy. His results seem to have been as satisfactory as any others.

2. The Mayo Clinic technic for doing nephropexy does not even visualize the renal pedicle so that the chance of interfering with the renal plexus is practically nil. Their attitude toward nephropexy has been extremely conservative because of poor results in their own hands and because of their opportunity to see the poor results of nephropexy in the hands of others whose patients consult them because of failure to obtain relief. The technic employed by those most enthusiastic about their satisfactory results in nephropexy consists of a very thorough mobilization of the renal pelvis, pedicle and upper ureter so that they must interfere to some extent with the renal plexus.

3. Mr. Frank Kidd, who has had a wide experience in nephropexy for painful nephroptosis, emphasizes the intentional stripping of the renal pedicle in order to accomplish sympathectomy as a step in his nephropexy technic.

4. Major J. C. Kimbrough, Medical Corps, U. S. A., has done nearly 200 nephropexies in which he has also done sympathectomy as a step in his surgical technic, with very satisfactory results.

I am sure that the sympathetics and abnormal motility do not explain the pain in all cases of painful nephroptosis, but I feel quite sure that renal sympathectomy makes nephropexy for painful nephroptosis more satisfactory.

Renal sympathectomy for nephralgia and renalgia has been reported by a number of writers with satisfactory results.

Sympathectomy as a complementary procedure in pelviolithotomy or nephrolithotomy as a prophylactic measure against recurrent stone formation has been advocated on the basis of producing a less concentrated urine and therefore less likelihood of further calculus formation. I can see no contraindication to doing a sympathectomy in renal stone cases where exposure of the renal pedicle is easily accomplished. In certain cases, however, the exposure of the renal pelvis will be technically so time-consuming and so difficult that it should not be done because of a resultant increased surgical risk. This is especially true in cases which have had a previous renal operation.

The indication for renal sympathectomy in certain types of nephritis in which medical management is not satisfactory in controlling the advance of the disease is just beginning to be studied. There have been several case reports of patients who have been definitely benefited by sympathectomy who were not getting along satisfactorily with treatment in early glomerulonephritis. The explanation for the improvement in these cases, of course, is that the blood flow through the glomeruli is increased through the vasodilator effect of sympathectomy.

Renal sympathectomy has been suggested in cases of reflex anuria and theoretically it seems to be a much more reasonable procedure than decapsulation. Neuwirt has reported a case of reflex anuria which was relieved by injection of the splanchnic nerves by the method of Kappis.

Renal sympathectomy in the remaining kidney, in patients on whom a nephrectomy for tuberculosis has been performed, has been advocated in order to produce a better blood supply to the kidney upon which the patient has to rely for his existence. This indication I do not believe is reasonable, but some surgeon may carry it out.

Renal sympathectomy has also been advocated in cases of severe hypertension, on the theory that increasing the bed of the circulatory system in the kidney by sympathectomy would result in an appreciable and satisfactory reduction in blood pressure. This is also a rather theoretical indication and it will remain to be seen what results are obtained in the hands of those who try it.

SUMMARY

Painful abnormal motility syndromes of the upper urinary tract may be recognized by pyeloscopy and relieved by eserine or by sympathectomy.

Renal sympathectomy is a valuable technical step in nephropexy to insure the best results in pain relief following kidney fixation.

Renal sympathectomy is indicated in (1) nephralgia, (2) as a prophylactic against recurrent renal stones when technically easy, (3) in reflex anuria as a last resort.

The indication for renal sympathectomy in cases of glomerulonephritis is being investigated now and further reports will more satisfactorily evaluate its use.

Recent information on the physiology and pharmacology of the upper urinary tract serves to but open a field rich in possibilities of a far better understanding and treatment of painful conditions of this portion of the body.

DEMOCEDES*

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ACCORDING to popular tradition the most famed of the ancient Greek physicians was Hippocrates. The belief has arisen also that Hippocrates was the first and probably the only great physician of ancient Greece. It is for this reason that I wish to direct attention to the life and adventures of Democedes, who lived approximately seventy-five years before Hippocrates and in his day probably assumed the high position later accorded to Hippocrates. The reason why Democedes has been largely over

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looked by modern authors is that the only surviving record of his life is found in the third book of Herodotus, a lay historian. Scattered allusions are to be found in some of the fragmentary verses of Anacreon, in the writings of Lysis, and in some of the Persian tablets preserved from the reign of Darius the Great of Persia. Democedes was famed not only on account of his skill as a physician, but on account of his association with numerous truly great makers of history of the sixth century before Christ. He it was who was the first deliberately to suggest to Darius the unwarranted attempted invasions of Greece by Persia, which almost changed the course of the civilization of the world and which caused a tremendous loss of both lives and property in Greece.

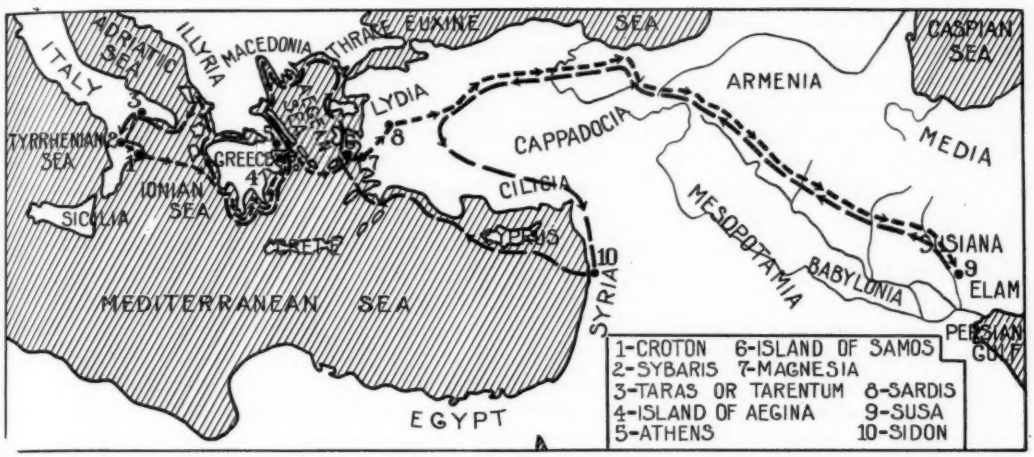

Fig. 1. Map showing the wanderings of Democedes.

Democedes was born in Croton about 550 B. C. The city of Croton had been founded about 710 B. C. by a band of wandering Achæans, under the leadership of Myscellus, who had been driven from their homes on the northern coast of Peloponnesus by invading Dorians. Legend states that Croton had its origin when Herakles, a local prince, who afforded hospitality to Hercules, was accidentally killed by him and buried at that site. Croton, together with a neighboring but smaller city, Sybaris, forty miles to the north, formed the two most important cities of Magna Græcia. The harbor of Croton was only fair, but it afforded the only safe anchorage between the cities of Reggio, near the site of the modern Messina, to the south, and Taras, situated on the northern shore of the modern Tarentine gulf, to the north. The domain ruled over by Croton extended to the west coast of Italy. Its most famous colony was Paestum, which today is celebrated for the superb ruins of the temple dedicated to Poseidon, whose grandeur rules the surrounding waste. Croton, at the time of Democedes' birth, was not only an important commercial center, but was probably one of the most important centers of art and learning to be found in Greece. The temple of Æsculapius, situated here, was stated by Herodotus to have been the best in all Greece at that time. Here fresh air, pure water, rest or exercise, as might be needed, diet, massage, heliotherapy, hydrotherapy, and athleticism played a major part in the treatment of the sick who came to the temple for care. The innumerable votive tablets left by grateful patients recorded the salient facts of each case, and, as a consequence, soon became valuable sources of medical instruction.

The accession of Peisistratus at Athens marked the onset of a fifty year period of unrivaled prosperity for Croton and Sybaris, which continued until the disastrous civil war of 510 B. C., resulting in the complete destruction of Sybaris by Croton. The wealth and luxury of these two cities of Magna Græcia formed a marked contrast with the poverty and simplicity of Greece proper. The power, magnificence,

and influence of these cities were astounding; the legend of grandeur has come down through the misty pages of history as rivalling that of King Midas. The population of Croton in 550 B. C. has been estimated to have been more than 700,000, and its surrounding walls were fourteen miles in circumference. After 588 B. C., Croton obtained its first world-wide fame on account of the successes of its athletes in the Olympic games. The most famous of its victors was Milon, the wrestler, who was said to have been the strongest man concerning whom there are any written data. Moralists of that age pointed to Croton and Sybaris as extremes of excessive luxury and oriental extravagance. From 530 B. C., Pythagoras and his pupils referred particularly to Sybaris as the object of effeteness.

Democedes was the son of Calliphon, the priest of the temple of Æsculapius at Croton. Calliphon was a member of the hereditary Askelpiad, the physician-priests of Greece. According to Jayne, Calliphon had been educated and had served an apprenticeship at the temple of Æsculapius at Knidos. Thus, Democedes could trace his ancestry back to Æsculapius, the Greek god of medicine. Calliphon was apparently the chief priest at Croton and a man of great importance in civic affairs.

As the settlers of Magna Græcia kept in very close touch with Achaia, and did not differ from them in tradition, religion, or language, it may well be believed that Croton, its most important city, was at that time as well versed in arts and sciences as Athens itself. Democedes was educated at the temple of Æsculapius in Croton. The name of Democedes came to be perpetuated as the result of a historical exigency, rather than as the result of his marked professional achievements. He was not a great teacher, but it was as the direct result of his practice of medicine that he occupied the stage when the great Greek historian of the fifth century before Christ, Herodotus, raised the curtain on the portrayal of the first act of that tremendous drama of the attempted Persian invasions of Greece. I shall attempt to record the exact manner by which Democedes initiated that stupendous movement of the East on the West.

Democedes, at the age of twenty years, had completed his education. Shortly after the conclusion of his courses in astronomy, mathematics, music, physiology and medicine, he had a violent quarrel with his father. Herodotus, according to Godley, stated, "He was troubled with a harsh tempered father at Croton, whom, being unable to bear, he left . . ." Democedes left Croton in 530 B. C. and became a wandering Greek physician, who had neither money nor equipment with which to practice his profession. He arrived at the Island of Ægina about 529 B. C. and Herodotus says, "Settled there, before a year was out, he excelled all the other physicians, although he had no equipment nor any of the implements of his calling." The success of Democedes was so great that at the end of his first year he was elected by popular vote in public assembly to be state physician for the ensuing year at a salary of 1 Attic talent. The value of this was, according to Meara, $1,900 in our money and undoubtedly represented a much larger sum in its purchasing power. Osler has explained that state physicians were men of great repute, whose ability was unquestioned and who were the most skillful physicians in a given locality. He also stated that it was the custom of the state physician, at the close of a year's service, to appear before a court of review, at which time any charges of malpractice occurring during the preceding year could be heard and judgment rendered. The success of Democedes as state physician at Ægina was so phenomenal that he was engaged by the city of Athens in 527 B. C. to be its state physician at a salary of approximately $2,100. He arrived in Athens at the close of the rule of Peisistratis, the greatest absolute ruler that Athens was to know. Under his benevolent rule Athens enjoyed a period of unprecedented peace during which the arts and sciences flourished. Under the patronage of this autocrat, the Panathenaic festival was founded, complete copies of Homer's poems were collected, the reforms of Solon were put into effect, and many of the huge temples of the Acropolis were started, the most famous of which was the beginning of the temple to Zeus Olympus. In reality, Democedes arrived in Athens during its golden age. A profound impression must have been made on Democedes by Peisistratis' bid for power, his ability to return to Athens after being banished, and again gain control of the government, his physical and mental grace, the nimbleness of his wit and his resourcefulness, together with his guile.

Democedes remained in Athens only one year.

Records from that period indicate that his success as a state physician was tremendous and that it was he who first placed the office of state physician on a plane of respectability. He was a friend of Peisistratis and his two sons, Hippias and Hipparchus. At the close of his year in Athens, he was engaged by the most powerful Greek of that time, namely, the tyrant of the Island of Samos, Polycrates. His salary was said to have been 2 talents, or approximately $2,400. According to Dunglison, Democedes now ceased being a wandering Greek physician and became permanently attached to the court of Polycrates. It is Libby's belief that Democedes was probably the first Greek physician of whose life we possess any account.

Democedes spent the next four years, from 526 to 522 B. C., very happily. Although Polycrates was the cruelest of all the Greek tyrants, nevertheless, he was a great patron of the arts, and collected about him a representative group of the philosophers and poets of that time. In a short period, he had become the absolute master and leader of the Grecian states. As Herodotus states, "He . . . was the first Greek of whom I have knowledge, to aim at the mastery of the sea. . . . Of such as may be called men, Polycrates was the first to do so. . . ." His sea power was so widespread at that time that he controlled the Ægean sea, defied the combined forces of Corinth and Sparta, made separate treaties with Egypt, and forced Cambyses, ruler of Persia, to recognize him as a power to be respected. He was superbly wicked, a freebooter, an adventurer, a murderer, and a fratricide. Here at Samos resided the great lyric poet, Anacreon, designated by the Alexandrian critics as one of the nine greatest lyric poets. A fragment of poetry attributed to Anacreon is in existence in which he, in a spirit of jest, addressed Democedes, and told him that he would rather trust to the medicinal value of his favorite wine than to some of the remedies Democedes used. It is stated that Democedes and Anacreon became the companions and confidants of Polycrates.

The successes of Polycrates and the tremendous wealth of his court were instrumental in bringing about his downfall. Oroetes, the Persian governor of the province of Lydia, having been chided by Mitrobates, the governor of Dascyleium, over the fact that Oroetes had not seized Samos for his own, and because of the fact that one of the heralds of Oroetes had been supposedly insulted by Polycrates in his court at Samos, he decided to lure Polycrates to the mainland and there murder him. Oroetes invited an envoy of Polycrates to visit him in Lydia for the purpose of arranging an alliance between them, by which Polycrates was to offer safe conduct to Oroetes and his great wealth from Lydia to some point of safety outside of Persia. In return for these services, Polycrates was to be given a huge sum of money. Polycrates needed money badly in order to maintain his large fleets on the Ægean sea. Oroetes filled eight chests almost full of stones and then covered them with a thin layer of gold and jewels, giving the appearance of huge chests full of precious stones and metal. These chests were then sealed and the seals were broken and displayed to the envoy of Polycrates on his arrival in Lydia. The envoy returned to Samos and reported the supposed great wealth which he had seen in the treasure-rooms of Oroetes' palace in the city of Sardis. Polycrates then decided to visit Oroetes personally to consummate their alliance. The diviners and friends at the court of Polycrates endeavored to dissuade him from this adventure. His daughter dreamed that she saw her father aloft in the air, washed by Zeus, and anointed by the sun. When she told her father of this dream and prophesied that evil would befall him if he made this journey, he threatened her that if he came back safe she would long remain a virgin. And, as Herodotus stated ". . . She answered with a prayer that his threat might be fulfilled; for she would rather, she said, be long left a virgin than lose her father."

Polycrates sailed to the city of Magnesia on the mainland with a fifty oared ship. He had a great retinue of followers; Herodotus continued, "among whom was Democedes, son of Calliphon, a man of Crotona, and the most skillful physician of his time." When Polycrates arrived at Magnesia in 522 B. C., he was immediately seized by the soldiers of Oroetes and killed; as Herodotus summed up the situation, ". . . He was foully murdered, making an end which ill beseemed himself and his pride; for, saving only the despots of Syracuse, there is no despot of Greek race to be compared with Polycrates for magnificence." Following his death, he was crucified by Oroetes, and all of his retinue who

were not natives of the island of Samos were enslaved by Oroetes and sent to dungeons in the city of Sardis, the capital of the Persian province of Lydia.

Following this, Cambyses, the Persian monarch, died, returning from his conquest of Egypt, and in the resultant confusion and revolt incident on the assumption of the Persian throne by the false Smerdis, Oroetes decided to become the sole ruler of what is modern Asia Minor. He murdered Mitrobates and his son, and committed other deeds of violence. He murdered a messenger of Darius and confiscated his jewelry and property. In addition to this, he supported the Medes in an unsuccessful attempt to revolt from Persia. As soon as Darius was able to stabilize and consolidate the Persian empire, he then directed his attention to the farlying province of Lydia, and had Oroetes put to death by royal decree. This occurred about 520 B. C. The slaves and possessions of Oroetes were confiscated and moved from the city of Sardis over the Royal Persian road to the city of Susa, the capital of Persia at that time. During this entire period, Democedes had languished as a slave in the dungeons of Sardis, totally forgotten.

Shortly after Democedes' inconspicious arrival in Susa, with the other slaves of Oroetes, a most fortunate chain of circumstances occurred. Herodotus describes it as follows: "It happened that Darius, while hunting, twisted his foot in dismounting from his horse, so violently that the ball of the ankle joint was dislocated from its socket. Darius called in the first physicians of Egypt, whom he had till now kept near his person, who, by their forcible wrenching of the foot, did but make the hurt worse, and for seven days and nights the king could get no sleep for the pain. On the eighth day, he was in very evil case; then someone who had heard in Sardis of the skill of Democedes of Croton, told the king of him. Darius bade Democedes be brought to him without delay. Finding the physician somewhere all unregarded and forgotten among Oroetes' slaves, they brought him into view, dragging his chains and clad in rags."

Darius asked Democedes if he had a knowledge of medicine, which Democedes promptly denied because he feared that by revealing the truth concerning his ability he would be entirely cut off from Greece. However, Darius penetrated his subterfuge and under the threat of the use of scourges and goads, Democedes admitted that he had an inexact knowledge of medicine but that he had been associated with a physician, meaning Calliphon, and that in consequence his knowledge was not of value. However, Darius apparently recognized his ability and immediately placed himself under his care. Herodotus tells us that that night, under the ministrations of Democedes, Darius was able to sleep and that in a short time, with the use of gentle measures, the dislocation was reduced and Darius was restored to full health. Darius had despaired of ever being able to use his injured foot again. As a consequence of his cure and restoration to health, Darius' gratitude was unbounded, and magnificent and barbaric expressions of his regal gratitude and favor were made. Duplicates of his prison fetters were fabricated in gold and presented to Democedes, together with a great treasure. Democedes was given a house in Susa, with a large number of slaves, and was made a constant table companion of Darius. The only boon that was consistently refused Democedes was his freedom to return to his native Hellas. Through the successful intercessions of Democedes, the lives of the less fortunate Egyptian court physicians were spared and they were allowed to return in safety to Egypt. It is stated that Darius and Democedes became very close friends and that Democedes accompanied Darius on his various hunting expeditions and on state visits to various portions of the Persian empire. However, by the year 518 B. C. the novelty of this life began to pall and Democedes began to scheme how he could return to Greece. At this time, another fortunate circumstance occurred, which furthered his plans of escape. An abscess developed in the breast of Queen Atossa, which Democedes was able to heal completely after he had extracted from her a promise to perform a duty which he would request of her in the future. She, true to her bargain, having been coached by Democedes, persuaded Darius to invade Greece. She suggested, however, that before such a huge project was attempted, a band of Persian nobles, under the guidance of Democedes, be first sent to spy out Greece and determine what would be the most feasible route of invasion. Darius complied with her suggestion. The next morning, according to Cheney, he called before him a

group of fifteen Persian nobles and gave them their instructions, warning them that under no circumstances was Democedes to be allowed to escape. Democedes was then called before Darius, and informed of his mission and was made to promise that he would not escape but would return to Persia as soon as the mission was completed. Darius offered to have all of Democedes' treasure, which he possessed in Susa, sent with him as presents to his brethren and to his father, in Greece. Democedes, however, fearing that this might be a trap by Darius, declined, and stated that he would rather leave his treasure and possessions in Susa and enjoy them on his return from Greece. Darius was pleased with this answer and instructed the commission to proceed to the city of Sidon on the coast of Phœnicia and there charter two triremes and a great galleon in which they were to carry gifts for Democedes' father and brethren. The commission surveyed all of Greece, until finally, near the conclusion of their efforts, they reached the city of Taras, in Italy. It is very probable that a complete survey was thoroughly conducted of the status of all the Greeks, including the Asiatic and insular branches. This Periplus, if it had been preserved, would have been of inestimable value historically, because it would have given a complete account of the actual state of the Grecian world about 518 B. C.

Democedes was able to persuade Aristophilides, king of Taras, to detain the Persians as spies, and to remove the rudders from their boats in the harbor. Democedes escaped to Croton, after which the Persians were freed and allowed to depart unmolested. The Persians sailed at once to Croton, where they endeavored to recapture Democedes in the marketplace. The citizens rallied to the aid of Democedes and dispersed the Persians. The galleon, which had originally been intended by Darius for the father and brethren of Democedes, was now confiscated by the wily Greek for his own use. The Persians were then placed on their two remaining triremes and ordered to sail for Persia. To continue their survey then would have been courting death and capture and loss of their survey of Greece and its possessions. Just prior to their sailing, Herodotus describes the final boastful act of Democedes: "They should tell Darius that Democedes was betrothed to the daughter of Milon. For Darius held the name of Milon, the wrestler, in great honor; and, to my thinking, the reason of Democedes seeking this match and paying a great sum for it, was to show Darius that he was a man of estimation in his own country as well as Persia." Here ends the written account of the life and adventures of Democedes, as described in the third book of Herodotus, paragraphs 125 to 138, inclusive.

The following may be drawn on supposition concerning the future conduct of Democedes in the city of Croton, from 518 B. C. onward. His father-in-law, Milon, is said to have been the greatest Greek wrestler of ancient Greece. His phenomenal strength was world-wide. For example, he carried a live full grown ox on his shoulders through the Olympic stadium. He was six times crowned victor at the Olympic games and seven times at the Pythian games for wrestling. He was a man of great importance in the civic affairs of Croton and was the chief disciple of Pythagoras. It was he, as commander of the Croton army, in 510 B. C., who completely razed the city of Sybaris and turned the bed of a river through its ruins to complete its destruction. So complete was the destruction of Sybaris that nothing today remains of that once important city. Soon after this, Milon, seeing a tree partly split in two by a wedge, attempted to complete the splitting of the trunk and thereby dislodged the woodcutters' wedge, whereupon his hand was caught in the tree trunk and he was unable to free himself. That night he was devoured by wolves.

It may be assumed that Democedes, like Milon, was a disciple of Pythagoras. Pythagoras arrived in Croton in 530 B. C. He held a unique position among the Greek philosophers in that he was a remarkable combination of the religious mystic and the man of science. The cult he founded, with its subsequent modification, endured for a thousand years. Tradition and myth have so covered the actual figure of the man that it is now difficult to visualize him as he actually was when Democedes knew him. Considering his scientific side, he was the first of that great line of philosophers who made the sixth century before Christ a distinct period in the intellectual progress of the human race. Pythagoras was born on the Island of Samos in 580 B. C. He was a pupil of both Thales and Anaximander. He visited Egypt, Phœnicia, and Babylon on tours of investigation and instruction. Accord-

ing to Arisoxenus he carried the subject of arithmetic far beyond the needs of the commercial world of his day. The discovery of the Pons Asinorum was attributed to him, as was the substance of the first book of Euclid on geometry. He discovered the fourth and fifth intervals of the octave. Herakleitus, his severest critic, according to Meara, admitted that he was "a man of extensive research and acquired instruction." Pythagoras combined the character of a sophist with that of a great teacher, prophet and miracle worker.

His religious views were essentially as follows: He placed high value on ethical discipline, simplicity of food and attire, tabooed bloody sacrifices and animal foods, believed in kindliness, truthfulness, justice and fidelity toward all men. The appearance of Pythagoras at Croton produced an electric effect. On his first address, 2,000 persons were converted. Luxury was discredited, women wore their simplest attire, incontinence disappeared, and political discontent was frowned on. Pythagoras formed a select order of 300 influential citizens of Croton. This order was interested in science, politics and religion. Other similar clubs were formed quickly throughout Italy and Sicily and rapidly gained widespread poltical influence. Pythagoras was largely influential in causing the war between Croton and Sybarius. The very exclusiveness of the Pythagoras order shortly began to cause suspicion, envy, and open opposition. The opposition finally became organized and using open violence, according to Meara, wiped out the entire local order, in 450 B. C., when all the characters of our narrative were dead. The great importance and success of Pythagoreanism was largely due to the fact that it appealed to all sane thinking Greeks, who abhorred the revolting worship of the Greek god Dionysius, who had his chief center of worship in Croton. The importance of Pythagoreanism will be apparent when it is recalled that it remained when fused with Neoplatonism as the only chief rival of Christianity up to the year 500 A. D.

According to Power and Sarten, a great contemporary of Democedes made his appearance in Croton about 500 B. C. He was Alcmæon. His book on medicine is today only indicated by a few fragmentary passages, which, with works of Democedes, were lost with the destruction of the great library at Alexandria. He was the first to make recorded dissections on animals. He discovered the optic nerve, the trachea, and two types of veins, one empty and one carrying blood. He offered a sound physiologic explanation of sleep, sense impressions, and fatigue. The brain was recognized by him as being the central organ of intellectual activity. If fatigue and malnutrition gained the ascendency in one's life, disease resulted, but if they did not, health was the invariable result. Alcmæon is reputed to have been the first Greek physician to contribute actual scientific accomplishments to the field of medicine. The lives of Milon, Pythagoras and Alcmæon give a slight insight into the contemporaries of Democedes and how their deeds and thoughts influenced his later life.

Democedes, even seventy-five years after his death, was still considered throughout Greece to have been the most skillful and famed of all Greek physicians of that period. Herodotus classed him as the equal to the then living Hippocrates. The knowledge, memory, and so forth, of Democedes has been preserved for us by Herodotus as a literary exigency about which his epic of the Persian invasions of Greece revolved. It must be remembered that it was Democedes who first suggested to Darius the unwarranted invasion of Greece, solely as a means for personal escape to his home in Magna Græcia. It is hard to excuse his type of selfishness which placed in potential peril the freedom of an entire race and nearly changed the course of human development throughout the world. Democedes is of further interest in that he possessed the unusual quality of character by which he became the close friend and confidant of many of the outstanding characters of the sixth century before Christ, namely, Peisistratus, Polycrates, Anacreon, Darius, Atossa, Milon, Pythagoras and Alcmæon. He was an excellent example of those Grecian characteristics made famous by Homer, and must be judged by Homeric ethics rather than by those of the present day.

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LEUKORRHEA—TWO COMMON CAUSES

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THE two most common causes of leukorrhea are endocervicitis and vaginitis due to the trichomonas vaginalis. Because leukorrhea is a striking feature of each of these two pathological conditions, its origin may be ascribed to one or the other too hastily, and so, perhaps, wrongly. Of the 78 cases of trichomonad infection reported by Kleegman[1], 50 per cent had been previously seen by other physicians. "Of these, six had been told they had gonorrhea, six had had various operations advised, two had operations done, and one patient had one vaginal and two abdominal operations. Two had been told they had carcinoma of the cervix, which we proved to be eccentric erosions due to the trichomonad." Thus, of this 50 per cent, at least half have been wrongly diagnosed. Furthermore, the usual treatments for endocervicitis are not only valueless, but are often an aggravation, when applied to trichomonad infection.

The appearance of the vagina differs radically in the two conditions, except in patients where pregnancy and cervical inflammation coexist; here the congestion of pregnancy may cause the vaginal mucosa to resemble somewhat the appearance of a vaginitis. Where the cervix is the source of the discharge the vagina is often but little affected and its mucous surface may be pink and smooth. In trichomonad infection the surface is deeply injected and roughened—the "strawberry vagina." The cervical portion is likewise affected.

The discharge from an endocervicitis is heavy, thick, and tenacious—colored if pus is present. The trichomonad produces a discharge less tenacious and less homogeneous; it often has a foamy appearance—as though it had been whipped up by an egg beater. While it can readily be wiped off, the process is painful, and the mucosa may bleed; the discharge from an inflamed cervix is more difficult to remove because of its tenacity, but to do so rarely causes discomfort, and bleeding occurs, if at all, only from the eroded cervix.

Subjectively the two processes differ quite definitely; the vaginitis resulting from trichomonad infection is painful, causes severe dyspareunia, and an itching and burning often sufficient to produce insomnia. In endocervicitis the discharge annoys by its presence chiefly, and its most prominent subjective signs are frequently not local but general, and as such reveal themselves in the fatigue and irritability of chronic focal infection.

Bimanual examination in the presence of a trichomonad infection will show but little besides the extreme vaginal sensitiveness; in endocervicitis some phase of pelvic inflammatory tenderness, infiltration, or distortion is often found.

Both conditions are aggravated by the menstrual process, though the effect is usually more marked, objectively and subjectively, in the trichomonad infection.

The distinction between the two conditions is made certain in the examination of a smear from

the discharge in which the presence of trichomonads is suspected. Some of the discharge on the gloved finger is touched on the slide, a drop of normal saline added and the preparation examined under high power. The organisms, from 15 to 20 microns long and 10 to 15 microns in width, can readily be seen in large numbers. They are extremely motile and their agitations on encountering a group of pus cells or a patch of epithelium are a fascinating and amusing spectacle.

The trichomonas are a variety of parasitic protozoa[2] with the discovery of which in 1837 Donne established the genus trichomonas to include this flagellate and gave it the specific name vaginalis. It is regarded as distinct from the varieties hominis (intestinal), and buccalis (mouth). While its form varies, typically it is pear shaped, somewhat rounded anteriorly and pointed posteriorly. An undulating membrane extends spirally across the body and four flagella arise from its anterior end. It is found only in acid vaginal secretions. It was first cultivated in artificial media by Lynch in 1915 and 1922.[3] Reproduction is by binary longitudinal fission. Its distribution is world-wide. The mode of transmission is unknown. The incidence of infection is about 10 per cent.

In neither of the conditions is urethritis or cystitis a common finding, and rarely is the trichomona transferred to the male through intercourse. Kleegman refers to only one reported case of pyelitis and cystitis caused by it. She also reports a few cases of urethritis and prostatitis caused by it, in two of which the organism was present in the vaginas of the wives. Cornell questions whether the male is able to harbor the trichomonas long enough to transmit infection since it needs so much moisture for its growth.[4] He reports a case of acute urethritis in the husband of a patient with trichomonas vaginalis. Although the organism is fairly common in the urine of women with this type of leukorrhea, it is rare that cystitis develops; should it do so, however, Cornell finds that a 10 per cent argyrol solution instilled into the bladder gives relief. These points, together with the microscopic examination of the smear, serve to differentiate this type of vaginitis from that due to the gonococcus. Kleegman notes that in the smear preparation from a vaginitis due to either organism there are many pus cells with few other bacteria; she believes that this similarity is responsible for the diagnosis of "elusive" gonorrhea even though that organism is not found. Here the simple saline preparation will easily show the trichomonad. Kleegman states, however, that "occasionally both infections may be present."

Cornell believes "that many cases of vaginitis in children are due to the trichomonas, although he has not been able to prove it scientifically because of the lack of material. The fact that trichomonas is diagnosed as gonorrhea in the adult so frequently leads us to this conclusion." Stein and Cope, although they searched for flagellates in children under treatment for vaginitis, found none.[5]

The treatment of the two conditions differs greatly. In endocervicitis, treatment is directed at a deep-seated infection within the cervical glands, and demands, therefore, powerful and penetrating agents, either thermal or chemical; hence the efficacy of silver nitrate and the cautery for this condition. For the trichomonas infection such drastic methods are not only unnecessary because the disease is superficial, but pernicious, because the tissues involved will not endure traumatizing measures.

Many methods of treating trichomonad vaginitis have been used; Cornell reviews a number of them. The method of Kleegman has been the most successful so far devised, and the speed with which patients experience subjective relief by this procedure is as gratifying to the physician as it is to the patient. The method is as follows: The vagina, with its walls stretched by the widely opened speculum, is carefully cleaned with tincture of green soap. In acute cases the smarting may be quickly relieved by applying cold water. When well cleaned, the vagina is carefully dried; during both cleaning and drying the speculum should be rotated so that all parts of the mucosa are reached. The drying should be completed by blowing air into the vault by means of a bulb.

The entire mucous surface is now painted with full strength pyroligneous acid.[6] This acid is a tar distillate sometimes called pyroligneous vinegar and consists of acetic acid diluted with more or less water and holding in solution some creosote and empyreumatic oil, with methyl alcohol. It is an antiseptic and a stimulant. Cornell uses 2 per cent mercurochrome, as does Kleegman during the acute stage. In none of my cases was the pyroligneous acid used. Next, several small wool tampons are inserted, well coated with

Lassar's paste (N.F.). Treatments are given three times weekly during the acute stage, and twice weekly thereafter. It is important that treatment be continued through the menstrual period, for the growth of the organisms seems stimulated by the presence of blood, and unless checked, their elimination becomes almost hopeless. Kleegman emphasizes the need of treating the vulvitis which is present. The same cleansing process is used about the vulva, and calamine lotion applied. The patient may carry out this process at home twice daily.

Under this treatment patients will experience great relief almost at once, remarking about it, at times, before leaving the office. Within two to three weeks, the patient will be quite free of symptoms. Treatment should be continued through at least two menstrual periods, however, for the disease has a tendency to return, and Cornell feels that even longer observation is required.

Recently, Goodall[7] has described a simpler method in which picric acid is used with such satisfactory results that he proclaims it a specific for trichomonas vaginalis infection. It is used in a vaginal cone of 1 per cent picric acid, inserted daily high in the vault on retiring. A plain water, soap solution, or mild lactic acid douche is used once daily.

He has treated twenty-two cases, four during pregnancy and three in the puerperium. His results were uniformly successful. The average course of treatment extended over five to ten days. The treatment is carried on during menstruation. This method, as Goodall himself says, has been used in but relatively few cases. Its simplicity, however, invites a trial.

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MONTGOMERY WARD & CO. UNDERTAKES URINE EXAMINING SERVICE

The A. M. A. Chemical Laboratory reports that in a recent catalogue, "Ward's 60th Anniversary—1872—Sixty Years of Progress—1932," appears an advertisement of a "new professional service." In bold face type appears: "Your urine should be analyzed at least every 90 days." It is inferred, of course, that this repeating service may be secured through Montgomery Ward & Co. The A. M. A. Chemical Laboratory requested five persons to send orders to Montgomery Ward & Co. accompanied by the required money order for $1.50. In due time there came from the firm an invoice addressed to each person with the statement that within a few days a container would be received with full instructions from "our laboratories." Shortly afterwards, each individual received through the mail a container and bottle which did not come from the Montgomery Ward & Co. home laboratories, but from the Universal Research Laboratories, Minneapolis, Minn. The American Medical Association has no information in its files concerning the Universal Research Laboratories in Minneapolis, nor have these laboratories been approved by the Council on Medical Education and Hospitals. Four specimens of urine, found pathologic by a competent investigator, and one specimen which was determined to be normal, were sent. In a few days came letters stating that the urinalysis report was enclosed; in each case the letter was almost the same except for the numbers indicated on the report. The letters were written on the stationery of the Universal Research Laboratories and bore the name of "H. W. Darby, M.D., Director." A typical letter contained the following: "Your urinalysis has been completed and we are enclosing your report herewith. In checking your report we note indications 5, 25 and 26 show a little faulty but you can correct these, if you follow directions set forth below the faulty indications, which are self explanatory. Your report is very encouraging, nevertheless it is a good idea for you to have these examinations from time to time to check yourself and protect your health." The reports did not indicate that a painstaking examination of the specimens had been made. For each of the pathologic specimens it was stated that the report was "very encouraging." In no case did the results reported agree with the character of the urine sent. (Jour. A. M. A., April 30, 1932, p. 1561.)

PRESIDENT'S LETTER

OUR annual meeting is over. The extensive, varied and interesting program was appreciated by the largest attendance in the history of the Association. The total registration was 1,724, of whom 1,030 were physicians. Affairs of this kind, that run smoothly, do not form themselves from thin air, but represent considerable planning, hard work, and effort on the part of certain interested members of the association.

It is the duty of the Committee on Scientific Assembly, composed of the chairmen and secretaries of the sections on medicine and surgery, the President, the Vice-President, and the Secretary of the Association, to arrange the program for the annual meeting. The President may add to that committee whomever he sees fit. It is increasingly difficult to arrange a program that will at least be the equal of that of the previous year. The personnel of the Committee on Scientific Assembly changes each year to a large extent, so that most of its members come fresh to the difficulties of assembling a program. Much of the credit for this last meeting is due to Dr. E. A. Meyerding and Dr. W. A. O'Brien, who have had wide experience in the presentation of medical subjects both to the profession and the laity. The problem of continuity in this committee therefore is an important one, and under the present arrangement unsatisfactory. It would be well if some arrangement were made whereby a program committee composed of five men qualified for such activities were appointed to act with the Committee on Scientific Assembly, one man to be dropped each year and a new appointee put on to serve for five years.

The difficulties the world is in now are said to be due to unsound economic and social conditions. Concerted and united action is essential to solve these problems. The Great War demonstrated what concerted action can do, although to our sorrow its goal was that of terrible and ruthless destruction of life and property. How thoroughly that goal was reached we all know. It will take the world a long time to recover and the scar will always remain. Social conscience must be awakened in all walks of life and the medical profession, as in the past, must and will render whole-hearted service. The evening of our program devoted to medical economics was well planned and conceived, taking up one phase of interest to us. Such discussions are best presented as this was, entirely apart and separate from the scientific program.

In periods of economic depression it becomes increasingly difficult to furnish to the mass of people all that medical science has to offer. Changes are taking place in the social fabric of all nations. Alterations are occurring in our methods of practice, and we cannot stay them; therefore, we must take a hand and guide these movements, moulding them into the best form for the good of the public and our own profession. Faulty as some of the forms of socialized medicine in European countries seem to us, nevertheless those practicing under such systems, complain though they may about the faults, are practically unanimous in saying the conditions are better than they were before. This alone is food for thought. The leading article in MINNESOTA MEDICINE for May by Dr. J. Gilfillan, entitled "Compulsory sickness insurance," should be read by every member of our Association.

M. L. Henderson.

President,
Minnesota State Medical Association.

EDITORIAL

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UNWARRANTED VETERAN EXPENDITURE

The attention of the taxpayer is being drawn by numerous articles appearing in the public press and various lay journals to the outrageous demands which have been successfully made on the government treasury by a relatively small group of war veterans. A few hundred thousand of the four million or more World War Veterans have been able to persuade our weak spined congressmen to extend and further extend grants of money and special privileges to former veterans so that they have become a privileged class. The raid on the treasury has gone to such an extent that 1,300,000 persons are now receiving bounty at the expense of the taxpayers, and as much as one-fourth of the federal government budget of four billion dollars is being handed over to about 1 per cent of the population.

This would not be open to criticism if this vast sum were being paid only to those who suffered physical or mental handicap in service to their country. Financial compensation to these unfortunates is none too much, and in cases of real disability is not begrudged by anyone. This sympathy, however, has been played upon by a small group of veterans to obtain special privileges for anyone who ever served his country in a war. This group that vaunts its former patriotism has made a fine display of themselves by their unpatriotic raid on the treasury.

It should be remembered that there are over three million former World War Veterans who do not belong to the Legion. It would be well for them to organize for the patriotic duty of saving the country from financial ruin in this time of peace. The Legion performance is a good example of what an organized minority can do.

The extension of free hospital service to veterans for disabilities unrelated to service put into effect in 1926 and the proposed expansion of the hospital building program to increase the available beds by 100,000 more or less, a subject which received such emphasis at the recent State Meeting, are only a part of this subject of the wanton expenditure of the taxpayer's money. That 82,850 patients were admitted to government hospitals in 1931 for disabilities having nothing to do with the War gives some idea of the favoritism being shown. With the proposed additional 100,000 beds this number must be multiplied several times and the private hospitals will be ruined, a larger number of physicians forced into governmental employ, and the Government Treasury—will it stand the strain?

When a man enters the Army by enlistment he does a patriotic duty; when by conscription he is forced to do what he should do. There is no law providing that he shall be paid by the government after he is mustered out. Yet more than twice the number of our dead and wounded are receiving monthly checks from the government. Pensions for disabilities sustained in civilian life because the sufferer is a veteran is an-

other example of absurd discrimination. The doles handed out in monthly checks for supposed partial or total disability to veterans who are not appreciably disabled but are earning good incomes is another example of the extent to which the taxpayer's money is being squandered.

One of the results of the depression is the interest the taxpayer is taking in the expenditure of public funds. Public opinion is a very powerful weapon and the light being thrown upon the unwarranted expenditures on veterans is sure to result in at least some correction of what has been described as a lawful raid on the Treasury.

ANNUAL REGISTRATION OF PHYSICIANS

An analysis of the laws pertaining to the annual registration of physicians in the various states of the Union by Dr. E. J. Engberg, secretary of our State Board of Medical Examiners, appeared in a recent issue of the Federation Bulletin. There has been a steady increase in the number of states requiring annual registration of those engaged in the healing art since California led the way in 1917. Now seventeen states require this yearly registration with fees ranging from $1.00 to $10.00.

From the questionnaire sent to the secretaries of the various State Boards it was ascertained that the majority of the secretaries favor annual registration. Without it, a Board has a record only of those who have been licensed to practice in the state and data concerning the practitioner for the most part only up to the time he was licensed. With it, the Board knows who are practicing in the state. In addition, the registration fee furnishes a fund which can be used to enforce medical practice laws.

The practical result of such registration is well shown in the case of Minnesota. Previous to the enactment of the present law requiring yearly registration, prosecutions of those practicing in the state without a license were almost unknown, largely because of lack of funds. In the last four years, however, the Board has investigated 213 cases and obtained fifty-four convictions out of fifty-eight cases brought to court.

Some have objected to the principle of taxing the medical profession for the purpose of enforcing a law designated to protect the public. The same criticism might be made of other fees, which are in effect special taxes. On the other hand the enforcement of medical practice laws does benefit physicians as well as the public. Doubtless many State Medical Associations would be willing to donate a sum yearly, as is done in Kentucky, to help enforce these laws.

COST OF CULTS

Recently figures have been made available regarding the amount expended in this country on irregular practitioners of the art of healing. The data have been obtained by the Committee on the Costs of Medical Care. Approximately 125 million dollars is the figure paid to some 36,150 irregular practitioners. Of this, 42 million goes to some 7,650 osteopaths; 63 million to 16,000 chiropractors; 10 million to 2,500 naturopaths, and another 10 million to some 10,000 Christian Science and New Thought healers.

The rest of the report contains little that the average physician does not already know. The educational requirements for physicians have been steadily increased in recent years, but this has not resulted in protection for the public. The same basic educational requirements have not been required of the irregular practitioners and all go by the title of doctor. A short cut has therefore been provided to the title of doctor.

In recent years the undergraduate osteopathic training has been so extended and so improved that it seems not unlikely that eventually this group will be absorbed by the regular profession just as occurred in the case of the homeopath. We doubt whether the same will happen to the chiropractor, whose star seems to be distinctly on the wane.

The requirement of an examination in the Basic Sciences seems to furnish a state of ultimate protection from those ignorant of fundamental medical facts. Universal adoption of this requirement would help to solve the problem for the country as a whole and would help to correct the chaotic situation now existing throughout the country in respect to medical licensure.

DERMAL ABSORPTION OF SALICYLATES

Salicyl esters such as methyl salicylate (oil of wintergreen) are commonly prescribed as constituents of ointments, liniments and local applications, on the assumption that they possess a greater skin penetration owing to their lipoid solubility, than do other salicylates. The amount of salicyl absorbed under these conditions would appear nevertheless to be too small for definite systemic effects. The salicyl compounds offer a good opportunity for testing the comparative importance of lipoid and water solubility, and of the chemical reaction (basicity and acidity) in dermal absorption. A recent study indicates that lipoid solubility may not be as important as some other factors. Moderate degrees of chemical reaction (basicity and acidity), possessed by substances, appear to be more important than lipoid solubility for penetration of the skin. Alkalinity, which softens the skin, and acidity, which apparently hardens it, are more important than simple solution in the fatty secretion of the skin. (Jour. A. M. A., February 20, 1932, p. 643.)

OF GENERAL INTEREST

Dr. M. S. Henderson, president of the Minnesota State Medical Association, addressed the members of the Southwestern Minnesota Medical Society on "Fractures" at the semi-annual meeting held in Worthington, Minn., Tuesday, May 3, 1932. A film on "Traumatic Surgery of the Extremities" was also a feature of the program.

In order that a scale of charges more in keeping with the present general financial condition might be inaugurated, the board of managers of the Detroit Lakes Community Hospital recently reduced the rates in certain rooms in the institution. The rates for the operating room in some instances were also lowered.

Dr. Leo M. Crafts, Minneapolis, has recently received the formal invitation of the Neurological Society of Paris to attend the Annual International Neurological Reunion, at Paris in June; and to be a contributor to the program and the discussions of the meetings. This is an international gathering of neurologists, sponsored annually by the Paris Society, including mostly men from the adjoining European Countries and Great Britain, with a limited number especially selected from the United States. The meeting was omitted last year in deference to the convening of the International Neurological Congress, at Berne, Switzerland, in September, to which Dr. Crafts was named as a delegate.

MINNESOTA STATE BOARD OF MEDICAL EXAMINERS

MINNEAPOLIS QUACK PLEADS GUILTY AT HASTINGS, MINN.

State of Minnesota *vs.* John Hettwer.

John Hettwer, sixty-four years of age, residing at 3019 Hiawatha Avenue, Minneapolis, entered a plea of guilty to practicing medicine without a license at Hastings, Minnesota, on May 2, 1932, and was sentenced by the Honorable W. A. Schultz, Judge of the District Court, to a term of nine months in the Dakota County jail. In view of the fact that Hettwer has been in jail since April 20, 1932, the date of his arrest, and because of his age and his signing a statement that he would absolutely refrain from the practice of healing in any way, shape or manner in the future, Judge Schultz suspended the balance of his sentence and placed the defendant on probation. If any further complaint is made in reference to the defendant, he will have his suspension of sentence revoked and he will be placed in the county jail at Hastings. Judge Schultz severely admonished the defendant to get out of the medical business in view of his not being licensed nor qualified and to stay out of it or spend some time in the county jail.

Hettwer was arrested on the specific complaint that he had treated Mrs. James Danek, 447 Fifth Ave. S., South St. Paul, Minnesota, for goiter. Hettwer not only diagnosed her case but prescribed and furnished the medicine for treatment. Hettwer was born and raised in Germany, coming to this country in 1914. He admitted to the Court that he had practiced a little at Melrose, Minnesota, and also at St. Cloud, Minnesota. At the time of his arrest he was hostile and indignant, but at the end of two weeks in jail he cooled down sufficiently to thoroughly digest the warning given him by Judge Schultz. He was very meek in court and will undoubtedly be very careful about violating the Medical Laws in the future.

This is the first prosecution instituted by the Medical Board in Dakota County since the passage of the Basic Science Law and splendid coöperation was received from Harold Stassen, County Attorney. The warning given the defendant by Judge Schultz indicates that the Court intends to deal severely with quacks in that judicial district.

STATE BOARD OF MEDICAL EXAMINERS

NATUROPATHIC "PHYSICIAN" PLEADS GUILTY

State of Minn. vs. George Schuster

On May 9, 1932, George Schuster, fifty-four years of age, entered a plea of guilty to practicing healing without a Basic Science Certificate before the Honorable Lars O. Rue, Judge of the District Court, in Minneapolis, and was sentenced to pay a fine of $100.00. After being admonished by the Court to cease practicing healing at once and to refrain from it in the future, the defendant paid the fine. Judge Rue also informed counsel for the defendant that a second violation of the Medical Laws of this State would undoubtedly result in a trip to the Minneapolis Work House for the defendant.

Schuster's illegal practice of healing in this State came to light following his making complaint in Chicago against one William W. Blyth, charging Blyth with swindling him out of $2,050.00 for a fake medical license. Schuster claims to have been ordained a German Lutheran minister in 1909, at Pittsburgh, Pa. He also claims to be a member of the Naturopathic Association, and he appears in a picture of the delegates to the National Naturopathic Convention held in Milwaukee, Wis. Schuster's place of business in Minneapolis was at 4256 Park Ave. On being questioned by a representative of the Minnesota State Board of Medical Examiners, Schuster admitted that he had been twice previously convicted of practicing medicine without a license; in 1921 at Youngstown, Ohio, and in 1928, at Chicago, Illinois.

Splendid coöperation was received from Leo J. Gleason, Assistant County Attorney, who represented the County Attorney's Office in this matter. While this was the first medical case disposed of before Judge Rue, who is one of the newer members of the Hennepin County Bench, the warning issued by the Court to the defendant clearly indicates that the Court intends to deal severely with unlicensed practitioners and particularly those who have previous convictions.

OBITUARY

Dr. Sidney S. Hall

1844-1932

Dr. Sidney Storrs Hall, eighty-eight years old, died at Eitel hospital, Minneapolis, Saturday, May 7, 1932. Dr. Hall was a physician and surgeon for fifty-seven years, retiring in 1924. Surviving are two sons, Edwin C. of Milwaukee and Robert S. of Cleveland Heights, Ohio, and two daughters, Mrs. James A. Older, Portage, Wis., and Miss Jennie Hall, supervisor of science in the Minneapolis elementary schools.

Interment was in Ripon, Wis.

A FORUM OF THE COMMITTEE ON PUBLIC HEALTH EDUCATION

No one questions any further the obligation of the medical profession to supply the press and the public with authentic medical news. The necessity, also, for quoting individual physicians must be recognized by any reasonable body of men.

The question is not now: do these obligations exist? but: how can they be accomplished so that the press, the radio, and all lay publications can be amply supplied with authentic medical news while the public is, at the same time, protected against publicity seekers within the profession and charlatans without.

The regulations printed below were recently adopted by the Sedgwick County Medical Society of Wichita, Kansas. They should prove interesting reading for any society that is still struggling with this ticklish problem:

I. Requests received by individual members for expressions of opinions on medical matters by newspapers or reporters shall be referred to the executive secretary of the Sedgwick County Medical Society to be placed before the Committee on Medical Ethics and Good Will Preferably such information shall be given to the press in the name of the Sedgwick County Medical Society without the mention of individual names. Whenever this is impossible, the phrase, "Dr. So-and-So, speaking for the Committee on Public Education, of the Sedgwick County Medical Society," should be used.

Requests received by individual members for a medical opinion or endorsement of a commercial commodity or any request for a public statement in which the authority of the individual's opinion rests upon the fact that he is a medical man, shall be referred to the executive secretary of this Society to be placed before the Committee on Medical Ethics and Good Will for its approval. Preferably such information should be given to the press in the name of one of the standing committees of this Society.

II. Any Society Member who, by invitation or upon his own initiative, writes an article on a medical topic for publication in the lay press or to be broadcast over the radio, shall submit the said article to the Committee on Public Education prior to publishing or broadcasting it.

III. No Society member shall broadcast an article over the radio, or issue it directly or indirectly to a lay publication, without the approval of this committee.

IV. Any Society member who publishes an article on a scientific subject in the lay press or broadcasts it over the radio shall use only title in conjunction with his name to establish his authority to speak on the topic in question.

V. Any officer or chairman of a committee of the Sedgwick County Medical Society who writes an article in the lay press or delivers a speech over the radio on an extra-scientific subject shall use only the title of his office and not any of his personal titles.

VI. This Committee will approve all authentic scientific articles which are not of a self-aggrandizing nature.

VII. To guide physicians who desire to write articles for lay consumption, the following definitions are submitted:

a. Permissible medical publicity is the issuance of a public report concerning an event of general interest or importance. It stresses the happening rather than the individual.

b. Undesirable medical publicity is the publication of individual activities designed to magnify the importance of that individual in the eyes of the public.

c. Propaganda is a systematic effort to gain public support for public health activities.

d. Public Health education is the impartial instruction of the public in facts relating to the prevention and treatment of disease. It stresses the facts rather than the individual presenting them.

MISCELLANEOUS

REPORT OF THE MEDICAL SCHOOL 1930-31

To the President.

Sir: I have the honor to submit the following report:

STUDENT BODY

The number of medical students varies little from year to year. We can always more than fill our limited classes from the large number of applicants.

There is a growing sentiment that we should diminish rather than increase the number of students. Practically all the faculty feel that the number is too large for the best teaching. There is a growing conviction also, both in the school and among the alumni, to the effect that too many physicians are being graduated. I have the impression that our graduates are finding it progressively harder to find a suitable location and earn a living. An overcrowded profession means a degenerating profession: this is particularly true in Medicine, where the opportunities of entering related professions are almost non-existent. The temptations ordinarily not listened to become overwhelming in the presence of adversity. It is not good public policy to educate more doctors than the country requires. This question will doubtless receive faculty consideration in the near future.

FACULTY

As noted in the President's report for 1928-30, Dr. Frederick C. Schlutz resigned as Professor and Head of Pediatrics at the close of the school year of 1930. This place was filled as of October 1, 1930, by the appointment of Dr. Irvine McQuarrie, previously Associate Professor at the University of Rochester. This appointment is universally accepted as a very happy one.

Dr. Richard E. Scammon resigned as Professor of Anatomy at the close of the Summer Session, 1930, to accept the Deanship of the Division of Biological Sciences at the University of Chicago. At the end of the school year of 1930-31 he returned to Minnesota as Dean of Medical Sciences. He shares with Dean Lyon the administration of the Medical School, having charge of matters of finance and policy. Everyone rejoices to welcome back Dean Scammon.

To Dr. Scammon's professorship in the Department of Anatomy was appointed Dr. Edward A. Boyden, Harvard man, previously Professor of Anatomy at the University of Alabama. With the transfer of Professor Hal Downey from Zoology to Anatomy, and the return of Dr. Scammon, our Department of Anatomy now has five full professors and is as strong as any in the country.

An important addition to the Department of Medicine is Dr. Hobart A. Reimann as full-time Associate Professor. Previously for three years he was Associate Professor of Medicine in the Pekin Union Medical College. He is interested in the bacteriological side of disease.

In the fall of 1930 Miss Marion Vannier resigned as Director of the School of Nursing and Miss Katharine J. Densford, Assistant Dean of the Illinois Training School in Chicago, was appointed.

KIDNEY SYMPOSIUM

Following the plan of the Physiology Symposium of the summer of 1929 was another on kidney problems, scientific and clinical, in July, 1930. The program was arranged by a committee under Dr. Hilding Berglund's chairmanship. Foreign participants were Dr. F. Volhard of Frankfort, Dr. Paul Rehberg of Copenhagen, and Dr. I. Snapper of Amsterdam. Several scientists from American universities as well as local faculty members also contributed. The attendance was good. The collected results are to be published as a monograph.

COMPREHHENSIVE EXAMINATIONS

The plan of comprehensive examinations adopted in 1929-30 went into full effect in 1930-31. The wisdom of putting all examinations under one Chief Examiner is amply demonstrated, and Dr. A. T. Rasmussen has shown his extraordinary capacity to carry forward such an enterprise. The faculty has yet to develop the technic for the best type of papers, but the experiment is promising.

SUMMER JUNIOR PROGRAM ABANDONED

For some years a division of the junior class has been in residence in summer and graduated in December of the year following. This plan has been discontinued. Hereafter all juniors will be taught together during the regular session. Seniors will be taught in four divisions, one graduating in March, the others in June. Economy of effort and the belief that sufficient good internships would be available April 1 and July 1, dictated the change.

RESEARCH

The medical research program, greatly aided by the special legislative appropriation of $25.00 a year, has actively continued. The yearly contributions are a credit to the school, constitute an active leaven in the student body, bring out our best young men and women, and in the long run help scientific progress and raise the level of medical practice.

BASIC SCIENCE BOARD

By statute the State Board of Examiners in the Basic Sciences is closely allied with the university, two professors of the medical faculty being members. During the year Dr. J. C. McKinley was appointed by the Governor, in place of Dr. E. T. Bell, and was elected Secretary-Treasurer. Dr. C. M. Jackson was re-elected President of the Board.

Dean Scammon will report for the year 1931-32.

Respectfully submitted,
E. P. Lyon, *Dean.*

SOCIAL INSURANCE

Edward H. Ochsner, M.D.
Chicago

QUALITY OF MEDICAL SERVICES DETERIORATES UNDER COMPULSORY HEALTH INSURANCE

In preceding articles Social Insurance as a whole has been considered. In this and subsequent articles our observations will deal more particularly with Compulsory Health Insurance, one phase of Social Insurance. The chief danger to medical progress and efficient medical service to the American public comes from that small group who wish to establish lay bureaucratic control over the private practitioners of medicine and dentistry.

The state exercises a legitimate and proper function in public hygiene and sanitation, the teaching of personal hygiene in schools and colleges, in the medical care of paupers, criminals, and the indigent in general, but whenever and wherever it has entered into the private practice of medicine it has always resulted in inefficiency. Even in institutional work, with the possible exception of University Clinics, the medical service rendered by the government is rarely excellent or even good, nearly always mediocre and oftentimes even worse.

The health, happiness, prosperity, and efficiency of the citizenship of any nation depend more upon the integrity, ability, unselfishness, and enthusiasm of the medical and dental professions and upon the quality of medical and dental services rendered to the people than upon any one other factor. Any change in the practice of medicine and dentistry which will in any way hinder these professions from giving their best services will eventually react unfavorably upon the whole nation. That state medicine and Compulsory Health Insurance actually will and does lower the general quality of medical and dental services is supported

by reason and experience. While it may level up a little from the bottom it unquestionably levels down from the top and it is this leveling down that will surely stop medical progress.

Medical progress depends not so much upon the rank and file of the profession as upon occasional great men with vision. If we unduly hamper these great medical minds, medical progress must cease. The quality of medical services received by the people in general depends in large measure upon the quality of teaching which the rank and file of the profession receive and upon the enthusiasm and the ideals which are instilled into them by their teachers. Men of great ability can do their best work only if absolutely free, and a physician under lay bureaucratic control never is entirely free. Andrew Carnegie, one of the most successful men of modern times in the best sense of that word, makes the following statement in his Autobiography: "Thereafter I never worked for a salary. A man must necessarily occupy a narrow field who is at the beck and call of others."

One of the continually recurring misstatements in the Compulsory Health Insurance propaganda is that it encourages personal hygiene and consequently disease prevention. Nothing could be farther from the actual facts. Which person is more likely to take care of his teeth—the one who gets his dental services free, or the one who has to pay for it out of his own pocket? Those who claim the former just do not know human nature.

One of the chief causes of wonder of the Germans during the World War was the splendid condition of the teeth of the American soldiers as against the almost universally poor teeth of the Germans. Why this great difference? The chief and principal reason is that American citizens have their teeth taken care of by private dentists who take a very personal interest in each individual patient. Most American dentists and physicians are spending much of their time instructing their patients in general and oral hygiene. Contrast this with the work of the Krankenkasse physician of Germany who asks his patient one or two questions, then reaches into a file, hands him a typewritten prescription and gets rid of him just as quickly as he can and as he must, if he is to see fifty patients in an afternoon office period of two hours; and this he is by force of necessity compelled to do if he is to make a living for himself and his family at twelve cents an office consultation. Then again the claim is made that Compulsory Health Insurance examinations are more thorough. This, too, is a statement contrary to fact and to reason when one realizes that the sort of office consultation above described gives the physician the same pay as a thorough physical examination does. No man can afford to make a careful, painstaking examination for twelve cents—not even in Germany, where living expenses are almost as high as in this country. One "Krankenkasse" physician in Berlin told me personally that he made twenty-three house calls in four and one-half hours or at an average rate of one in a little less than twelve minutes, driving from house to house, going up from one to four flights of stairs each time, examining a patient and prescribing for him.

Brend states that in England the average time spent by panel physicians in making a diagnosis is from three to four minutes. Another English writer in commenting on the above facts rightly observes that these are not abuses of Compulsory Health Insurance but inherent faults of the system.

We have all repeatedly seen and heard the statement that seventy per cent of the American people—namely, the low and moderate income classes—are not getting adequate and efficient medical services. Where those who make this statement get their statistics no one has ever been able to find out. The fact is that there are no statistics available on this point. From this it must be evident that the only place they can get these figures is from the depths of their fertile imaginations.

If we stop to investigate the source of these statements, we invariably find that they emanate from two classes of individuals—namely, a certain type of ultra medical specialist whose only experience is or has been with the extremely rich, whom he charges fancy, exorbitant fees, and with paupers, whom he treats in charity hospitals. As a consequence, he has had no personal experience with patients with moderate incomes and has no right to express an opinion on this subject. The other class who repeat these figures are usually persons who never have had personal experience with the practice of medicine and hence their opinions are practically worthless.

I maintain that the poorer classes of patients get better services in this country than they do in those countries of the world that have Compulsory Health Insurance and that their medical requirements are at least as efficiently met as are their food, clothing and particularly housing requirements. This phase of the problem is an economic one and cannot be solved by a palliative such as Social Insurance.

(The effect of Compulsory Health Insurance on the quality of medical services will be further discussed in the next article.)

REPORTS AND ANNOUNCEMENTS *of* SOCIETIES

INTERNATIONAL CONGRESS ON BILIARY DISEASES

Under the auspices of the Association for the Development of Medical Relations between France and other nations a series of symposia on ailments of the liver and biliary tract will be held at Vichy, France, September 19-22, 1932. Authorities on the subject will take part in the discussions. For further information address Dr. Frank Smithies, president of the Congress for the United States, at 920 N. Michigan Avenue, Chicago, Ill.

HENNEPIN COUNTY SOCIETY

At the recent election held at the Society's club rooms in the Medical Arts Building, Minneapolis, the following officers were elected for the coming year, to take office October 1, 1932: President, Erling W. Hansen; first vice president, P. A. Stewart; second vice president, R. R. Cranmer; secretary-treasurer, A. J. Campbell; librarian, A. S. Hamilton.

New members of the Executive Committee are S. H. Baxter and J. F. Corbett. A. E. Booth and F. A. Erb were named to the Board of Censors. Olga S. Hansen and Leo Rigler were elected to membership on the Ethics Committee, and A. E. Hedback and T. A. Peppard to the Board of Trustees.

Delegates to the State Convention are E. L. Gardner, J. H. Simons, and C. A. McKinlay, with Reuben Johnson, E. K. Green and John O. Taft as alternates.

SOUTHERN MINNESOTA MEDICAL ASSOCIATION

The annual meeting of the Southern Minnesota Medical Association will be held in Rochester on September 12. It will be a one-day meeting. A good program is being planned and it is expected that the meeting will be well attended.

As previously, the Association awarded a medal to a graduating medical student at the University of Minnesota who has shown the greatest proficiency in the clinical fields of medicine and surgery during his junior and senior years in the medical school. The award this year went to Dr. Herbert Schmidt of Minneap-

olis. In addition the Association this year gave a cash award of $100 to the recipient of the medal. The two awards were presented to Dr. Schmidt on Cap and Gown Day.

M. C. Piper, M.D., Secretary.

WOMEN'S AUXILIARY
Minnesota State Medical Association

President—Mrs. James Blake, Hopkins
Chairman Press and Publicity—Mrs. Glen R. Matchan, Minneapolis
Editor—Mrs. Horatio B. Sweetser, Jr., Minneapolis

At the meeting of the Women's Auxiliary, held during the American Medical Association meeting in New Orleans, Mrs. James Blake of Hopkins was elected President, and Mrs. S. S. Hesselgrave of Saint Paul was elected Secretary.

LADIES' AUXILIARY OF COUNTY MEDICAL SOCIETY GATHERS

An interesting meeting of the ladies' auxiliary of the Blue Earth County Medical Society was held in the library of Mankato Clinic Monday evening.

The doctors' wives demonstrated their willingness to practice their husbands' preachments and took heed of recommendations for annual physical examinations.

At the conclusion of the meeting, the doctors, who were assembled at St. Joseph's hospital, joined the group for a social time and refreshments.

Dr. and Mrs. V. Counseller of Rochester were guests of honor. At the Medical Society session, Dr. Counseller was the principal speaker and presented a paper of interest.

TOLYSIN—NOT A NEW DRUG

Although the advertising creates this impression, Tolysin is not a new drug. Tolysin is simply the brand name of the Calco Chemical Company for neocinchophen, the ethyl ester of paramethyl phenylcinchoninic acid. The proprietary brand "Novatophan" was introduced in medicine long before Tolysin was made by the Calco Chemical Company. Tolysin was the first brand of neocinchophen to be manufactured in the United States. Neocinchophen-Abbott, Neocinchophen-Benzol Products Co. and Neocinchophen-Squibb are described in New and Non-official Remedies. Tolysin does not stand accepted. (Jour. A. M. A., April 9, 1932, p. 1322.)

PROCEEDINGS MINNESOTA ACADEMY OF MEDICINE

Meeting of March 9, 1932

The regular monthly meeting of the Minnesota Academy of Medicine was held at the Town and Country Club on Wednesday evening, March 9, 1932. Dinner was served at 7 p. m. and the meeting was called to order at 8 o'clock by the President, Dr. J. C. Litzenberg. There were 49 members present.

Minutes of the February meeting were read and approved.

Dr. L. E. Daugherty read the Necrology Committee's report on the death of Dr. H. Longstreet Taylor:

Dr. Henry Longstreet Taylor, 1857-1932

Henry Longstreet Taylor, son of David Hendrickson Taylor and Laura Carroll Taylor, was born August 19, 1857, at Cincinnati, Ohio. His boyhood was spent in Cincinnati. He attended Haverford College at Haverford, Pennsylvania, receiving a B.A. degree in 1878. The year 1878-79 was spent at the University of Berlin. Returning to this country he matriculated at the Medical College of Ohio, from which he was graduated in 1882. For the next three years he pursued postgraduate medical studies at the Universities of Strassburg, Vienna, Berlin and London. During this period, Dr. Taylor studied under some of the greatest medical authorities in Europe, among them Koch and Lister. In 1885 he entered practice in Cincinnati and was appointed Associate Professor of Surgery at the Medical College of Ohio. On the basis of postgraduate work done in America and Europe, Haverford College granted him a Master's Degree the same year.

Ill health forced Dr. Taylor to give up his practice and his position in the Medical School in 1889. He spent the next four years in practice at Asheville, North Carolina.

Dr. Taylor came to St. Paul in 1893 and remained there until his death January 2, 1932. During the early years in St. Paul he specialized in diseases of the nose, throat and lungs. As time went on he became more and more identified with lung diseases, particularly the study and prevention of tuberculosis. It is safe to say that previous to 1901 the treatment of tuberclosis was little better than it was before Koch's discovery of the tubercle bacillus. It was in this year that the Governor appointed a commission, with Dr. Taylor as Chairman, to investigate the need of a state sanatorium. Two years later the legislature created a permanent Advisory Commission on which Dr. Taylor served until 1918. The state sanatorium was opened in 1907. These commissions developed and put into operation the Minnesota plan of state and county sanatoria, which is the equal of any system for the care of the tuberculous in this country. Dr. Taylor was the dynamic force on these commissions and it was through his energy and perseverance that the present plan for the care of those afflicted with tuberculosis was made possible. He maintained that the State Sanatorium should be for the care of early cases whose chances of recovery were good and that the county institutions should be primarily for the more advanced cases. He realized early that the advanced case of tuberculosis in the home was a real menace to the family and community and, furthermore, that a high mortality rate in a sanatorium did not necessarily mean that the institution was not serving an extremely useful purpose.

For the care of tuberculous patients who did not wish to go to public institutions he established a private sanatorium at Pokegama, Minnesota, in 1905. This was the first permanent sanatorium in the state; the second was the State Sanatorium at Ah-Gwah-Ching, near Walker, Minnesota. Between 1913 and 1919 fourteen county sanatoria were established in various parts of the state.

The Ramsey Country Preventorium, the third insti-

tution of its kind in the United States, was opened in July, 1915. Dr. Taylor was medical director of the Preventorium from the time it was established until his death.

In 1906, Dr. Taylor started the Minnesota Association for the Prevention and Relief of Tuberculosis. This was incorporated as the Minnesota Public Health Association in 1914. He was elected President of the Association in 1924.

Dr. Taylor was elected Vice-President of the National Tuberculosis Association in 1925 and President in 1927. He was made an honorary life member of the Association in 1930.

In recognition of his accomplishments in anti-tuberculosis work, Haverford College honored him with an LL.D. degree in 1928.

For many years Dr. Taylor was a member of the Minnesota Academy of Medicine and was President of the Academy in 1922.

Dr. Taylor was a member of the American Climatological and Clinical Association, the International Tuberculosis Union, the American Sanatorium Association, the Mississippi Valley Tuberculosis Conference, the American Medical Association and the Ramsey County Medical Society. He was one of the organizers and a past president of the Minnesota Trudeau Society and until his fatal illness was extremely active as president of the Ramsey County Public Health Association.

Dr. Taylor is survived by his widow, Mrs. Ethelberta Geer Taylor; a son, Henry Longstreet Taylor, Jr.; and two daughters, Mrs. Antonio Nicolich and Laura Carroll Taylor.

Dr. Taylor was both a student and a crusader. His life was devoted unstintingly to combating a disease that is primarily an enemy of youth and those in the most productive period of life. His grasp of the many phases of attack necessary for eradicating this disease placed him among the pioneers. His vision, courage and progressive open-mindedness to any advance in the treatment of tuberculosis have been justified amply. The low death rate from tuberculosis in Minnesota is largely due to the program evolved and advocated by Dr. Taylor more than a quarter of a century ago.

He was an early and ardent advocate of the use of roentgenology in the diagnosis of pulmonary tuberculosis and of the Von Pirquet and Mantoux tuberculin tests to discover incidences of infection in children. He used artificial pneumothorax in selected cases long before it was generally accepted in this country. He advocated extrapleural thoracoplasty years before his associates were persuaded to adopt it.

Minnesota is in the vanguard of the states in its war on tuberculosis and the Minnesota Plan is the lengthening shadow of Dr. H. Longstreet Taylor.

In the words of the great bard:

> "His life was gentle and the elements
> So mix'd in him that Nature might stand up
> And say to all the world, 'This was a man!'"

(Signed) The Committee.

Dr. J. C. Brown read the following Necrology Committee report on the death of Dr. John F. Fulton.

Dr. John Farquhar Fulton, 1856-1932.

In the death of Dr. Fulton on February 1, 1932, the Minnesota Academy of Medicine lost one of its three remaining St. Paul founders, and the first president of this Academy.

Dr. Fulton was born in York County, Pennsylvania, on April 20, 1856. He was the youngest child in a family of seven children. His father was a Presbyterian minister. His ancestry in this country dates back to two brothers, Robert and James Fulton, who came from County Donegal in northern Ireland and settled in Philadelphia about 1730. The former brother, Robert, settled in Lancaster, Pennsylvania, and his son Robert Fulton II, was the inventor of the steamboat. The other brother, James, had a son, James II, a merchant in Philadelphia, who at the time of British occupancy was forced to flee from Philadelphia and settled in York County on a farm about fifty miles south of Philadelphia. It was from this branch of the family that Dr. Fulton sprang and it was on this farm that he was born.

His early education was in three nearby rural schools, five to ten miles from the farm, and to which he walked while attending school. When he was eighteen he entered York Collegiate Institute where he attended for nearly three years in the study of Latin, Greek, mathematics, chemistry, and literature. It was while at York that his classical teacher, Professor McDougall, advised young Fulton to study for the ministry, and his parents were told that he had all the instincts and abilities for a preacher. His eyes gave out in his second year's work and Mr. Henry Small, the founder of the college, took him to Philadelphia to consult the doctors about his eyes. He returned with glasses but was not relieved from his discomfort. After missing a great deal of school at York Collegiate Institute, he went on his own account to Easton, Pennsylvania, and attempted to enter Lafayette College. His eyes troubled him so much that he returned to the farm and it was then that the Fulton's family doctor, William Smith, recognized young Fulton's interest in the functions of the body and advised him to study medicine. This he did and matriculated at the University of Pennsylvania Medical School in September, 1877. At that time he consulted the late Dr. Samuel Risley, who recognized the condition peculiar to his eyes and fitted him with myopic astigmatic lenses which he now wore with comfort. Dr. Risley and Dr. Fulton always remained fast friends and at medical conventions would be seen seeking each other. Among his classmates at the Pennsylvania Medical School were Reichert, Howard Kelly, and Whitehead. Among his teachers were Leidy, Harrison Allen, the elder Pepper, and Horatio Wood. He has related to members of this society of the lectures given by S. Weir Mitchell. In addition to his medical degree, which was granted in May, 1880, he was given a M.S. on a thesis, "Exophthalmic Goiter," and a Ph.D. degree on "Inherited Tendency and Its Treatment."

After three months' service at the Pennsylvania General Hospital doing general surgery, he went to Will's Eye and Ear Infirmary in Philadelphia, where he

worked under Risley, Goodwin, Keyser, and Strowbridge. Later he served at the Old Pennsylvania Hospital, doing surgery under Gross and Agnew; the latter he always held in high esteem. Some time during 1880 he moved to Altoona, Pa., and established himself in a large practice in general medicine. Here he remained for two years with the congenial surroundings of the Jaggard family.

In 1882 the American Medical Association held its meeting in St. Paul and while attending the meeting Dr. Fulton became attracted to the surroundings in St. Paul and decided to settle there. Dr. Agnew had given him letters of introduction to Dr. Hand, one of the original founders of the Ramsey County Medical Society, and, through Dr. Hand's advice, he took over Dr. Atwood's office, located at Third and St. Peter Streets. Dr. Atwood, a competent ophthalmologist, had died a few weeks after Dr. Fulton's arrival in St. Paul. In a short time Dr. Fulton was established in ophthalmic practice. Through the enthusiasm of Dr. Fulton, Mr. Edward Jaggard, a young lawyer and his life-long friend, was induced to come to St. Paul and subsequently became judge on the Supreme Bench.

In 1888, Dr. P. H. Millard and Dr. Fulton conceived the idea that a medical school should be developed in connection with the newly established Minnesota State University, and, in 1889, they succeeded in getting a bill through the legislature appropriating $100,000 for the first building. The initial organization of the school was undertaken by four members, Drs. Fulton, P. H. Millard, R. O. Beard, and C. Eugene Riggs. Dr. Fulton held a chair of Ophthalmology and Otolaryngology in the Medical Department from 1888 until the time of his death. Dr. Fulton opened the first out-patient clinic for the treatment of indigent patients in connection with the new Medical School. There was an anouncement made to the effect that Dr. John F. Fulton would meet, at a certain hour on Tuesdays, any such patients afflicted with diseases of the eye, ear, nose, and throat.

Dr. Fulton was secretary of the Ophthalmological Section of the American Society in 1886; member of the Council of the Otolaryngological Section of the International Congress which convened in Washington in 1887; the first president of the Minnesota Academy of Medicine in 1888; president of the Ramsey County Medical Society in 1893; secretary of the section on Laryngology, Otology, and Rhinology of the American Medical Association in 1893-94. During the administrations of Governor Knute Nelson and Governor David Clough he was surgeon-general to the State of Minnesota.

Dr. Fulton was married to Miss Edith Wheaton, sister of Drs. Robert and Charles Wheaton, in St. Paul, April 11, 1888, who survives him. He is also survived by five children, four daughters and a son, and one sister.

Dr. Fulton was a man rather under average size with a kindly interest and engaging manner in conversation. Whenever he spoke of some outstanding man in the medical profession whom he had met, and he knew many of them, he usually had some interesting anecdote to relate, often quoting the exact words of the speaker on that particular occasion. In addition to his broad grasp and profiund understanding of the special field of medicine to which he devoted his life, Dr. Fulton's personality posessed a charm that made for him uncounted friends. To the members of the medical profession he was a continual stimulus. He was always interested in the careers and in the welfare of the younger men in the profession, and he sought always to encourage them in their struggles for recognition. Not only was he great as a physician but he was a true friend.

Dr. Fulton made it his business to attend regularly the various society and academy meetings and to take part in the presentation of papers and the discussions, nor did he fail to recognize and commend any meritorious work of his colleagues and especially of the younger men.

He was very much interested in protein therapy and contributed several papers to its use in iritis and other eye diseases. He was a willing auditor in all fields of medicine and was interested in and well-posted on the world's history and present political and economic conditions.

He practiced his profession until within two weeks of his death. As a member of this Academy we will always remember Dr. Fulton as a most kind and generous associate, giving of his time freely and of his experiences generously. The members of the Minnesota Academy of Medicine extend their sympathy to Mrs. Fulton, her son and daughters in their bereavement.

(Signed) The Committee—
S. Marx White,
J. S. Gilfillan,
John C. Brown, *Chairman.*

The scientific program consisted of the following:

Dr. Clayton K. Williams (St. Paul) read his thesis, entitled "Non-Specific Protein Therapy."

DISCUSSION

Dr. S. E. Sweitzer (Minneapolis): I was very much interested in Dr. Williams' paper on foreign protein therapy and I imagine it has a wider application in dermatology than in other branches of medicine. It has been classed as "fever therapy" and, in the larger application, the elevation of the temperature is the important part, but in certain phases of foreign protein therapy we can give infinitesimal doses and get results without any fever at all. In fever therapy we have the use of malaria in certain diseases like paresis. Dr. Williams also mentions milk; it being one of the first of foreign protein measures. That has been used largely in eye diseases, and typhoid vaccine has been given intravenously in arthritic conditions due to gonorrhea. Recently I had a patient in the hospital with gonorrheal keratoderma all over the feet. He also had gonorrheal arthritis, but had received no particular benefit until we used typhoid vaccine. We gave him this and the keratoderma disappeared and the joint involvements slowly diminished. He finally got out of the hospital with no stiff joints although it took a long time. The use of foreign proteins in infinitesimal doses is not so

well known, although we use it in certain dermatological conditions. We also give certain foreign proteins intradermally and get a more intensive reaction and better results in some cases.

Dr. F. R. Wright (Minneapolis): The Doctor mentions several cases of gonorrheal rheumatism. The results depend upon the reaction of the disease in the urethra. As a principle, it is impossible to cure any metastatic disease without curing the focus from which the metastases arise. Whether it is the rest in bed, or the protein injection, I do not know, but it is certainly not the temperature. A temperature of 113° is not sufficient to destroy the vitality of a gonococcus. The gonococcus, after being kept at a temperature of 113° for 40 minutes, will grow on proper culture media as well as the one that has not been submitted to heat.

Dr. Williams (in closing): Foreign protein therapy is used to stimulate the natural resisting forces. I agree with Dr. Wright that the prime factor in gonorrheal arthritis is to clear up the focus, but when you see the patient with swollen and painful joints and can give him relief by using foreign protein therapy I think it is worth trying. The question of fever being the prime factor in this reaction is open to argument. For instance, in using typhoid, we get a reaction in from eight to ten hours usually. In acute conditions where the resisting forces have not been taxed to the utmost, we use typhoid, but in a chronic condition where the infection has lasted for a period of months or perhaps years, I have been using milk or the split protein products. I think one dose should be given in acute cases, and get all the reaction from that one dose, but the chronic cases may require several, possibly three or four or more, before one gets any results.

Dr. Wm. F. Braasch (Rochester) reported the following case of "Recurring Renal Lithiasis."

Several years ago I reviewed the postoperative results in over 1,000 patients operated on at the Mayo Clinic for nephrolithiasis and found that stone recurred in approximately 10 per cent. Recurrence subsequent to a second operation occurred in only a few patients, approximately 2 per cent. A large number of patients were also observed in whom operation was not indicated. Among them were a few who gave a history of having passed stones repeatedly. It is evident, therefore, that repeated recurrence of stone is not common and that when it does occur etiologic factors are present other than those causing the usual single or occasional stone. Unfortunately, the exact factors involved in the etiology of lithiasis are still unknown. Observers are divided as to whether stone formation is caused by abnormal metabolism or infection. There is reason to believe that both factors may be involved. It is quite generally accepted that abnormal metabolism is the usual cause of recurrent stones composed of uric acid, cystin and xanthin. This is shown by the fact that uric acid stones will cease to form when the patient is placed on a purin-free diet. Repeated stone formation may, however, also be dependent upon infection, such as occurs with urea-splitting bacteria. It has been shown that there are several types of bacteria which have urea-splitting power. According to Eisenstaed, staphylococci having such properties are most frequently found in conjunction with renal stone, while Grossman has found that Bacillus coli are predominant. Recent bacteriologic studies at the Mayo Clinic by Hager and Magath have shown that infection with proteus ammoniæ is often the direct etiologic factor in the formation of phosphatic stones. That some anatomic factor causing retention in a calyx, the renal pelvis, or the ureter may be a primary factor permitting such infection is also possible. Most recurring stones of this type are composed largely of calcium phosphate. Renal stones composed of fibrin are exceedingly rare, and particularly so in cases of repeated stone formation.

The case which I am reporting tonight is one with frequently recurring stones composed largely of fibrin, involving both kidneys and apparently caused by renal infection with proteus ammoniæ.

The patient, female, aged 24, was well until March, 1930, when, three months pregnant, she developed severe left renal colic, which was followed by several minor attacks of pain. Shortly after delivery in August, 1930, she had repeated severe left renal colics accompanied by pyuria. X-ray examination showed a shadow about 1 cm. in diameter in the pelvis of the left kidney. On cystoscopic examination evidence of infection was found in the left kidney; the right was quite normal. A left pelviolithotomy was done elsewhere in December, 1930. The stone removed was composed of soft, spongy material combined with a phosphatic deposit.

Within two months the pain reappeared in the left kidney and roentgenograms again showed a large recurring stone. At operation in March, 1931, the kidney was found to be small and deformed, with a dilated pelvis which was filled with a soft material, and nephrectomy was done. Following this operation the patient made an uneventful convalescence and was quite well for three months. In August, 1931, she had her first pain referred to the right kidney area, accompanied by anuria for sixteen hours. A roentgenogram was negative. An intravenous urogram showed a large filling defect in the pelvis and a diagnosis of a large soft stone was made. In September a large fibrin calculus was removed. The pelvis of the kidney was lavaged with salt solution and ureteral bulbs were passed up the ureter. She was in good condition until two months later, when she had a recurrence of her symptoms and the X-ray again showed a large indefinite shadow in the right kidney area.

The patient came to the Mayo Clinic on December 3, 1931. She had been in bed during the last few weeks and complained of considerable tenderness in the right kidney region. Our X-ray studies corroborated the previous finding of a large soft shadow in the right kidney area. An intravenous urogram showed the pelvis to be almost entirely filled with calcified material. There was evidence of renal insufficiency as shown by a blood urea of 69 mg. The necessity of immediate removal of the stone was evident and this was done by Dr. Judd on December 11. The kidney was inflamed and friable, and was bound down by perirenal adhesions. The pelvis of the kidney was filled with a

soft fibrinous mass which was removed in pieces. Chemical analysis of the stone and microscopic sections showed that it was composed almost entirely of fibrin. Throughout its substance there were a number of small deposits of calcium phosphate crystals.

Four weeks after operation the patient again passed a soft stone, 2 x 1 cm. in diameter, composed of fibrin, with numerous deposits of calcium phosphate crystals scattered throughout its substance. Following this she passed three stones of a similar nature at intervals of ten days to two weeks, attended by renal colic. Subsequent to this on two occasions she passed a fine, powdery, white substance which on analysis was found to be composed of almost pure crystals of calcium phosphate. X-rays have been persistently negative until six weeks ago, when a roentgenogram showed an oval shadow in the right renal area, with a fair degree of density and about 2 x 1 cm. in size. This has remained stationary in size since, as shown by subsequent films, and has caused no pain in the kidney.

In view of the almost malignant growth of the stone, it was first thought that an abnormal form of metabolism might be present and an effort was made to correct it. Because of the predominant fibrin constituent of the stones, the possibility of some abnormality in the blood was considered. A careful study of the blood was made by Dr. Watkins and nothing was found other than a moderate reduction in hemoglobin. The coagulation time and bleeding time were quite normal. It would hardly seem possible, therefore, that the fibrin deposit was the result of a blood dyscrasia. In conjunction with Dr. Russell Wilder, we examined her for possibilities of some error in metabolism. Thinking that there might be a deficiency of Vitamin A, which has been regarded as a possible factor in stone formation, this was added to her diet without any apparent effect on the subsequent course. She was also given yeast daily over a long period of time. It had been suggested that there might be a superabundance of cholesterol in the urine or blood, but chemical analysis failed to show any. Chemical tests of the urine made by Drs. Boothby and Adams showed a persistent marked reduction in the citric acid content. This was checked repeatedly and found to be consistent. Since citric acid is a solvent of calcium phosphate, it seemed advisable to attempt to overcome this deficiency by the introduction of large amount of citrates. This was tried over a period of several days without any change in the chemical composition of the urine.

Following the operation cystoscopic examination showed the presence of some 25 or 30 c.c. of residual urine with some slight obstruction at the ureteropelvic juncture. This area was repeatedly dilated by means of large ureteral catheters and bulbs. As a result, the amount of residual urine has been reduced to 2 or 3 c.c.

Analysis of the urine in the pelvis showed it to be extremely alkaline, the pH reading being as high as 8.6. Bacteriologic studies of the urine showed almost a pure culture of proteus ammoniæ. It is well known that proteus ammoniæ favors the deposit of calcium phosphate crystals, and it seemed probable that such infection was a large factor in the stone formation. An attempt was made to overcome the alkalinity of the urine by means of a ketogenic diet and large doses of ammonium nitrate. In spite of this the pH of the urine never was brought to an acid level and seldom went below 6.4. She was unable to tolerate this treatment over a great length of time because of gastric upset.

In our effort to overcome the proteus ammoniæ infection, we established continuous drainage of the renal pelvis over a period of three days and lavaged the pelvis with strong silver nitrate solution, without materially affecting the bacterial growth.

An attempt was made to dissolve the reforming fibrin stones by means of lavaging the pelvis with karoid, which is an enzyme employed in destroying dead organic material. We used this in a solution as strong as 10 per cent, but were unable to make an impression on the stones. On the supposition that the stone now present is composed of calcium phosphate, we have recently lavaged the renal pelvis with phosphoric acid, in a solution of 1 and 2 per cent, as suggested by Randall. Although so far this has not affected the stone, it has apparently been a large factor in reducing the infection in the renal pelvis. At one time recently microscopic examination of the urine catheterized from the right kidney showed no pus or bacteria.

The patient's general condition is now apparently normal. She is voiding a normal amount of urine, which contains a small amount of pus and many proteus ammoniæ. The urine is less alkaline than formerly, the last pH reading being 6.9. Her last blood urea estimate was 28 mg.

Although the problems involved here have been difficult to solve, we feel that considerable progress has been made. It may be inferred that the renal stones were the result of infection with proteus ammoniæ. It is possible that this infection followed inadequate drainage caused by ureteral pathology arising during pregnancy. As the result of treatment received, the degree of infection and the amount of residual urine in the renal pelvis have been greatly diminished. The composition of the stone has been changed from a predominant fibrin to a definite calcium phosphatic consistency. If the stone now present can be removed, we hope that with persistent efforts free drainage from the renal pelvis can be maintained, and that the proteus ammoniæ infection, which is apparently the etiologic factor, will eventually be overcome.

DISCUSSION

DR. A. SCHWYZER (St. Paul): Only once have I seen some elastic stones that were passed, but they had a very different etiology. There was a hole in the bladder which came from a diverticulum of the sigmoid. The patient, a woman, came to the office one day with 22 stones in a box which she said she had passed in the course of two years. They were elastic.

This case is interesting as the formations are principally fibrin. If you learn that it is fibrin, you have to figure that it is of infectious character and that the infection is most probably in the pelvic mucosa. Dr. Braasch said the stone was removed by pyelotomy.

That brings to my mind one point I want to mention. For a long time I had the conviction, and Dr. Cabot when he was here a short time ago brought out the same point, that if we did a nephrotomy instead of a pyelotomy we would have less danger of a recurrence of stones, for if we drain through the pelvis we do not get a normal condition in the pelvis as long as the catheter is in there. The catheter irritates, and we do not eradicate the infection. I recall a case that had stones in both kidneys; the patient had been operated upon in Iowa in 1913 for a right-sided calculus. She had a stone at that time in each kidney. In 1918 she came to us and we found a stone in each kidney, each stone the size of a small walnut. Now she had pain in the left kidney. We operated on the left side by pyelotomy and took that stone out. She came back in 1923, and to my amazement she had large and multiple stones in both kidneys. We reoperated on the left side and removed the stones by nephrotomy. After the operation we saw a little shadow in the X-ray the size of a pea. That was in 1923. I have seen her rather recently (within the last year) and that shadow has remained exactly of the same size as it was in 1923. As I said, the second time we made a nephrotomy and put in two fine catheters side by side through the cortex. We left them in for about a week until we felt sure that we had the infection taken care of. We instilled daily nitrate of silver, and after the tubes were removed, did this from below a number of times. Thus this patient had two pyelotomies and the condition became worse than before. After an extensive nephrotomy, she is now in good condition and the urine is practically clear. In these cases if we operate by nephrotomy we have more of a chance to eradicate the infection. It is in the pelvis that these stones form and the less we damage the pelvis the more chance we have of curing the condition. I notice Dr. Braasch stated that in his case there was a rather large pelvis. There is probably a little stricture in the passage between pelvis and ureter.

Dr. F. R. Wright (Minneapolis): Stones in the genito-urinary tract are of two varieties: either primary or secondary stones. Secondary stones which are formed, are lime salts which are precipitated from the urine usually accompanying an alkalin fermentation. In studying the production of stones we overlook the fact that the urine is not water. It is a solvent for lime salts. When the solvent qualities of the urine are destroyed, the urine loses its ability to hold lime salts in solution that are precipitated to form stones. It is possible, where secondary stones are formed in the pelvis of the kidney, that the urine secreted by that kidney is normal, but that its solvent quality is destroyed by the products of infection which is present in the plevis or in the bladder.

I have under observation at the present time a girl who gives the following history: She is a high school girl; three years ago while in school we found that she had a stone in the right kidney. That was in 1929. We removed that stone and she got along fine. She came in the other day not feeling very well. Upon investigation we found that she had three small primary stones in the right kidney and two or three in the left kidney. Some metabolic function which produced the stone in the right kidney in the beginning has now gone far enough to produce stones in the left kidney, which was normal at the time the right kidney was operated.

Dr. Braasch (in closing): I want to thank the gentlemen who discussed this case report. In answer to Dr. Schwyzer's question as to the advantage of nephrotomy, it is quite manifest that in this case it would be almost impossible to remove the stone through the cortex, since the stone was so large that it would be difficult to remove it that way. However, when the stone is situated in a calyx it is advisable to do a combined nephropelviolithotomy. In this case I do not think the operation was a factor in causing recurrence. Retention of urine in the renal pelvis, together with infection with proteus ammoniæ, were probably the most important etiologic factors. The importance of a urea-splitting bacteria such proteus ammoniæ in the formation of stone is not generally recognized. I think that if the stone now present is removed and free drainage is established, the infection might be overcome. A large factor in the elimination of infection is the acidification of the urine. This can be accomplished better by means of a ketogenic diet than by any other method.

Dr. Emil S. Geist (Minneapolis) gave a lantern slide talk on the operation for Knee Fusion in cases of tuberculosis of the knee.

DISCUSSION

Dr. M. S. Henderson (Rochester): The hour is late so my remarks will be very brief. I would like to say a few words about the operation of arthrodesis as applied to the tuberculous knee joints. The Hibbs operation which Dr. Geist has modified to advantage is a very good procedure. I would like to call attention to a method to obtain the same result that we have used for many years with satisfaction. The lantern slide I am showing is a drawing demonstrating how, after the knee is thoroughly exposed and as much as possible of the tuberculous tissue removed, the bone ends are shaped by sawing off the articular surface of the femur and the tibia and in such a manner that they fit accurately with the knee flexed to about 170 degrees, as advocated by Dr. Geist. A step that I am sure has hastened the securing of bony union in our cases is a thorough roughening of the soft spongy bone on the femur and tibia, doing this with a gouge. When the bone ends are put together these roughened areas come in contact and hasten union. In addition to this a bone graft is placed across the front of the line of contact of the femur and tibia as illustrated in the lantern slide. The bone graft, obtained from the lower end of the femur, is spongy bone and so is very well suited for such a purpose. Wire nails are driven from below upward through the tibia into the femur to steady the position of the leg while the cast is applied. They are left protruding and are painlessly withdrawn three weeks after operation, when a window is made in the cast and the stitches also removed. The balance of the postoperative treatment is similar to that outlined

by Dr. Geist. These operations are really very successful. Dr. Geist did not have time to discuss the ultimate fate of these patients. We found that over a period of years, three to fifteen or more years, about 8 per cent died of dissemination of their tuberculosis. During this period, however, they were free of all pain in the knee and led a comfortable existence.

The meeting adjourned.

R. T. LaVAKE, M.D.,
Secretary.

PROCEEDINGS MINNEAPOLIS SURGICAL SOCIETY

Stated meeting held April 7, 1932*

Vice-President, Dr. E. K. Green, in the chair.

The following scientific program was given:

1. DR. E. T. EVANS (by invitation) read a paper on Acute Osteomyelitis:

Acute osteomyelitis is an acute surgical disease upon the early diagnosis of which depends, in a large measure, the institution of adequate treatment conducive to its alleviation.

In this paper the author does not intend to repeat the diagnostic points of acute osteomyelitis but rather to enlist his hearers as crusaders in the cause of surgery. For long, acute appendicitis was in the realm of medical therapeutics and it was only as the result of a long crusade that the medical treatment gave way to surgery, until now all branches of the profession are surgically minded in that respect.

The differential diagnosis of acute osteomyelitis lies as a rule between acute rheumatic fever and septic arthritis. The disease is blood-borne and attacks the metaphysis of the bone. Joints become involved only by sympathetic effusion when the metaphysis lies within it as in the knee, elbow, and hip, or by direct extention as so frequently occurs in the hip.

A slide was shown showing certain salient features of diagnosis.

That these errors of diagnosis do occur and that crusading in this subject must be incessant in order to make all the profession surgically conscious is brought out by a review of sixty-seven cases of acute osteomyelitis treated in this hospital.

There were twenty-one females and forty-six males from one to sixty-seven years of age; 77.6 per cent were under eighteen years of age.

In 67 per cent a single bone was involved, the large bones as usual predominating: femur 24, tibia 20, humerus 11, radius 2, ilium 2, miscellaneous 8.

The submitted diagnoses of these cases ranged all the way from teething to infantile paralysis and erythema nodosum. Some 34.3 per cent were diagnosed rheumatism; 14.9 per cent were diagnosed septic arthritis at some time in their course.

The average time from onset to diagnosis (excluding cases running over 100 days) was 25.3 days. Sixteen of the cases, or 24.2 per cent, were diagnosed within one week and an additional thirty-five cases, or 52.2 per cent, within two weeks. But of the first, only eleven cases, or 16.4 per cent, and of the latter only sixteen cases, or 24.2 per cent, were diagnosed by the attending physician prior to admission. Therefore, a total of 29 per cent were undiagnosed within two weeks until admission to the hospital.

On admission to this hospital, the diagnosis was missed in nine cases, all of which were diagnosed within twelve days and seven within a week.

Dr. Evans said the point he now wished to stress is that fifty-eight cases were diagnosed correctly on admission and immediate treatment instituted. The diagnosis was made by the admitting intern and based on the criteria shown on the slide. This is not because our interns are extraordinary but rather because they are osteomyelitis-conscious at this period of their training. Surgeons must be crusaders in keeping them so, just as our predecessors made the profession surgically conscious about appendicitis.

SUMMARY OF DIFFERENTIAL POINTS IN THE DIAGNOSIS OF ACUTE OSTEOMYELITIS, SUPPURATIVE ARTHRITIS, AND RHEUMATIC FEVER

History	Acute Rheumatic Fever 15-35 years	Acute Suppurative Arthritis 1-5 years	Acute Osteomyelitis 5-15 years
Onset	Gradual, often with sore throat	Acute	Sudden with chill
Trauma	Usually none	Often associated	Nearly always present
Predisposing infection	Tonsillitis	Ear infection and tonsillitis	Skin trouble and tonsillitis
Pain	Moderate, severe, improved with heat	Severe, sleepless; unrelieved by local measures	Intense, throbbing, like toothache; heat no value
Temperature	Gradual rise and moderate curve	Rapid rises—high curve	Immediate rise and very high
Pulse	Moderate increase	Rapid, 125-150	Very rapid, 140-180
Prostration	Moderate	Great	Greatest
Examination			
Location	Multiple joints	One joint, usually knee or hip	One focus not in joint—usually tibia or femur
Appearance	Joints enlarged and red	Little or no redness, swelling follows joint capsule	Nothing early—general local edema later
Tenderness	General over joints	Excessive over joints	None over joints—acute over bone
Fluid	Little or none	Tense with fluid—aspirated—pus	None in joint early
Movement	Painful	Extreme muscle spasm	Careful movements not painful

DR. C. W. WALDRON (by invitation) gave a lantern slide talk on "Delayed Transfer of Pedicled Flaps."

*Meeting held in the Eustis Amphitheater of the University Hospital and the scientific session presided over by Dr. O. H. Wangensteen, Chief of the Department of Surgery, U. of M.

DR. W. T. PEYTON read a paper on Hemangioendothelioma, and showed the following cases:

Case 1. This case is a baby girl, six months of age. The child was delivered with forceps, apparently a very difficult delivery, and this resulted in multiple lacerations about the head and neck. The parents attributed the present lesion to these birth injuries. It is, therefore, difficult to say whether the lesion was present at birth, but three weeks later two discolored spots were noticed in the right cheek, each about 2 cm. in diameter. These lesions seem to have fluctuated in size; certain days they would be more raised than others, but there was only gradual progression of the lesion until December, 1931, when the child was treated elsewhere with a radium pack. Four days after this treatment was given, the lesion suddenly grew worse. The child was first seen here on January 25, 1932. At that time the entire right cheek was involved with tumor mass. The skin over this mass was purplish in color. It was firm on palpation. There was increase in local heat. The diagnosis at that time was hemangioma. Treatment consisted of high voltage X-ray therapy. She was given 80 per cent S.E.D. Following this treatment it improved for about two weeks and then became more swollen and firm. The child was hospitalized for three weeks and treated with hot packs, during which time it gradually improved so that three weeks later this side of the face was not any larger than the other but it still is more firm than the other side. The discoloration has disappeared.

Case 2. This child was fifteen months of age on admission. The child was born with a mass in the right thigh. It was about 2 inches in diameter at the time of birth and grew slowly during the first four months of life. During the fifth month of extra-uterine life, or during the four weeks preceding his admission to the Out-patient Department, it grew very rapidly. The child refused to move this leg at the time of admission. Examination showed a tumor in the anterior aspect of the right thigh measuring 12x17 cm. and raised about 2 mm. above the surrounding skin. It extended from 3 cm. below the inguinal ligament down to below the patella. The skin over it was bluish in color. There was increase in local heat. It felt hard on palpation. He was given the following treatments: On January 31, 1930, 60 per cent S.E.D.; April 14, 1930, 60 per cent S.E.D.; December 30, 1931, 60 per cent S.E.D. Follow-up: The child began to use the leg after the second X-ray treatment. It has been gradually improving since the first admission and at the present time the tumor mass has disappeared. The skin is pigmented in areas, but otherwise is normal in color.

Case 3. This case was a boy fourteen years of age. He noticed a tumor over the right scapula for some time but thought it was a normal bony part. His father first noticed it in January, 1930, and at that time it was about 3 cm. in diameter. It grew rapidly and in February, 1930, the boy was seen by a physician who partially removed the tumor, stating complete removal could not be done on account of hemorrhage. Five weeks later it was more completely removed. It recurred approximately four months later (July, 1930) and grew rapidly following this recurrence. On admission here, November 28, 1930, there was a mass protruding over the right scapula, approximately 7 cm. in diameter. It was irregular in contour, ulcerated, and bled easily. X-ray of the chest showed slight enlargement of the left hilus. Hemoglobin was 56 per cent. December 6, 1930, a transfusion of 300 c.c. was given. December 8, 1930, excision of the tumor together with the right scapula was performed. December 27, skin grafts were implanted in the operative defect. January 26, 1931, 145 per cent S.E.D. was given to the skin over the scapula, anterior and posterior, in 4 treatments in 8 days. Follow-up: There has been no local recurrence but recent X-ray examination shows a large tumor mass in the left hilus. March 15, 1932, he was given 145 per cent S.E.D. to the left chest in four treatments over eleven days.

Case 4. This was a woman, aged fifty-four, who was admitted to this hospital October 5, 1928, complaining of pain on swallowing and cardiac palpitation. These symptoms were of six months' duration. Examination showed the thyroid slightly enlarged. The basal rate was minus 5. Operation was performed with a diagnosis of non-toxic adenoma of the thyroid. At operation the sternothyroid muscles on the right side were found to be very adherent to the thyroid gland. There was profuse bleeding from the thyroid gland so that no attempt was made to expose the entire gland or to remove it. A piece of tissue from the thyroid was removed for biopsy. Microscopic examination of the tissue removed for biopsy showed it to be hemangioendothelioma. On October 23, 1928, 130 per cent S.E.D. was given in two treatments over three days; December 12, 57 per cent S.E.D., and April 13, 1929, 139 per cent S.E.D. plus 30 per cent S.E.D. seven days later. Follow-up: About one month after the first therapy, pressure symptoms were so relieved that she could swallow more easily. She had never had any recurrence. This case was reported in detail by Dr. C. O. Rice in the American Journal of Cancer, 15:2301, 1931. This is apparently the thirty-fifth case of hemangioendothelioma of the thyroid and the first reported in the American literature.

Hemangioendothelioma would appear to be relatively rare, in view of the rather small number of reported cases, but it is probably much more frequent than reported, often being confused with hemangioma or sarcoma. Four cases of angioendothelioma about the jaw were reported by Withers. They were all at first considered to be sarcomas. Cushing and Bailey found difficulty in picking out their so-called hemangioblastomas because they had become scattered and lost in the list of classified tumors of the brain and were listed under the diagnosis of mascular gliomas or sarcomas.

Metastases do apparently occur in this condition. Bronzini reports a case of hemangioendothelioma of the external ear with metastasis to the cervical lymph nodes. There was a patient in this hospital some time ago who had two primary hemangioendotheliomas on the right arm with metastasis to the right supraclavicular nodes. Withers, on the other hand, reports four cases of hemangioendothelioma which involved jaws and emphasized the fact that none of these metastasized even though one case was five times recurrent following excision.

Dr. Peyton also showed a case of squamous cell carcinoma, primary in the superior alveolar process. The case was that of a male, sixty-two years of age, admitted December 1, 1929. He gave the following history. In the fall of 1927, a tumor appeared in the right upper gum. He saw a physician who cauterized the growth and applied radium at intervals of one month until July, 1928. He then consulted another physician who gave twenty to thirty electric treatments. In August, 1928, a third physician radically removed the tumor with either chemical or actual cautery, leaving open the side of the cheek. About one year later he had a flap from the neck swung up to repair this defect. The first recurrence was found in July, 1930, and recurred in the uppermost part of the right antrum. It was excised here, local excision being performed. October 13, 1930, 2,000 mc. hours of radium were implanted in the same area. March 6, 1931, there was a recurrence in the upper part of the defect in his face. On March 16, 1,100 mc. hours of radium were implanted. July 17, 1931, there was a recurrence medial to the ramus of the mandible which was treated with 2,400 mc. hours of radium. October 29, 1931, there was again a recurrence medial to the angle of the mandible and also a recurrence on the floor of the right orbit. At this time more radical excision was undertaken, removing the right half of the mandible and all

of the soft parts both external and medial to this part of the mandible. This operation was followed fifteen days later by removal of the contents of the right orbit and right temporal fossa. There has been no recurrence since this extensive operative removal.

DISCUSSION

Some one asked if another plastic operation would be performed to repair the defect in the last case shown.

DR. PEYTON replied that another flap will be swung up but one should never swing a flap as early as one year after the operation.

DR. J. M. HAYES asked if the metastases in the lung shown in the X-ray of the boy's chest had reduced under treatment.

DR. PEYTON replied that the film was taken about two weeks ago. The boy has just finished another course of X-ray therapy to this area and another film has not been taken since.

DR. O. H. WANGENSTEEN asked if the problem of hemostasis was a difficult one in the scapula case.

DR. PEYTON replied that it was not, because they did a very wide resection so that the tissues exposed in the operation were quite normal.

DR. WANGENSTEEN said that the fourth case shown by Dr. Peyton had been operated upon by Dr. Creevy. Considerable difficulty was had with hemostasis and Dr. Creevy asked Dr. Wangensteen to help him with it. The patient was under ethylene anesthesia and it was first believed that the bleeding might be due to the slight struggling of the patient under anesthesia. The anesthetic was discontinued but without allaying the tendency toward bleeding. Search was made for a substernal goiter, but none was found. Pressure was used meanwhile to control the bleeding. A deliberate incision was made into the right lobe of the thyroid with resultant alarming hemorrhage. A tentative diagnosis of hemangioendothelioma of the thyroid was made, which was subsequently confirmed microscopically. Mattress sutures were placed for hemostasis and the wound packed. Dr. Wangensteen said that Professor deQuervain had reported four such cases. This tumor was small. Sometimes they become extremely large and the patients may die from hemorrhage through erosion into the trachea or esophagus.

DR. MELVILLE H. MANSON (by invitation) read a paper on the Diagnosis and Treatment of Perinephritic Abscess.

Dr. Manson stated that his purpose in discussing perinephritic abscesses was to stress again the fact that this condition is diagnosed only after a long interval in the majority of cases, and that mistaken diagnosis is common. He wished to report a case of bilateral perinephritic abscess.

The average duration between the onset of symptoms and hospitalization or treatment is from three to five weeks. (Peacock 38.8 days; Eisenstadt 25 days; Habein 5.6 weeks; University Hospital 22.5 days.)

Dr. Manson stated that hip disease was a common, mistaken diagnosis in perinephritic abscess and that several cases had been treated by traction and splinting before the correct diagnosis was made. Because of the marked weight loss and secondary anemia in many cases, malignancy has been wrongly diagnosed.

In the majority of cases there is no history of previous renal involvement. However, a history of cutaneous infections, sore throat, influenza, or any foci of infection, may be obtained in over 50 per cent of instances. The symptoms of chills, fever, malaise, anorexia, loss of weight and backache are constitutional symptoms present in a variety of conditions. These symptoms are usually present in perinephritic abscess before localizing symptoms are manifest, and Dr. Manson stated that the most important single factor in making the diagnosis of perinephritic abscess was to keep the condition in mind.

Physical examination may reveal little of value. Tenderness in the lumbar region, usually on the right side, slight spasm of the erector spinal group of muscles, bulging in the loin, when present, tend to confirm a diagnostic impression. The bulging may be detected by measurement from the umbilicus to the spine on each side, when otherwise it is not obvious. Dr. Manson believed that the use of an aspirating needle as an aid to diagnosis was not employed often enough. He stated that a needle should be used for confirming the diagnosis of perinephritic abscess just as frequently as it is used in diagnostic pleural aspirations. Examination of the urine is of no differential value.

X-ray examination may show valuable indirect evidence in confirming a diagnosis, the most important of which is loss of the normal psoas and kidney shadows. Upward displacement of the diaphragm, displacement of the colon and scoliosis of the spine to the opposite side may also be seen. The X-ray signs are frequently absent up to ten days after the onset of symptoms.

Bilateral perinephritic abscess, although infrequent, occurs sufficiently often so that involvement of the opposite side should be suspected in a case which is still running a septic temperature after one side has been adequately drained. The first bilateral case was reported by Stuckney in 1880. In 1924 Hunt collected ten cases and reported one case (bilateral) from 106 cases of perinephritic abscess seen at the Mayo Clinic in a ten-year period. Several others have subsequently been reported. Dr. Manson reported the following case: A male, thirty years of age, was referred to the University Hospital with a diagnosis of "probable malignant disease of the bowel." His illness began five weeks before admission, with right-sided abdominal pain of rather severe character. This was accompanied by diarrhea. His course before admission was characterized by trouble with gas, continued pain, with fever and chilly sensations. There had been no vomiting, no bloody stools, and no urinary symptoms.

Examination showed an emaciated man who had lost 16 pounds in weight and considerable strength. Temperature was 99° to 103°, and pulse 90 to 100. There was a tender, firm mass on the right side of the abdomen opposite the umbilicus which was ballotable from behind. The mass did not move with respiration. Laboratory tests revealed a hemoglobin of 69 per cent. Urine showed a few hyaline casts and an occasional white blood cell. X-ray examination of the abdomen showed a mass on the right side suggestive of renal origin. Barium enema was essentially negative, except for displacement downward of the hepatic flexure of the colon. A needle was introduced into the back between the last rib and the crest of the ilium at the lateral border of the erector spinal muscle group and thick pus was obtained. Staphylococci were present on smear.

The right perinephritic space was drained posteriorly, obtaining a large amount of pus. The patient's temperature pursued a downward trend, reaching normal on his eighth postoperative day. On the ninth postoperative day he again ran fever, which continued as high as 103°-104°. It was felt that inadequate drainage on the right side was responsible and several times under transitional ethyl chloride anesthesia the cavity was explored with a gloved finger.

On his seventeenth postoperative day it was suspected that he had a perinephritic abscess on the left side. Aspiration of this side was rewarded by pus. Drainage was established and some improvement followed. Fever persisted, however, and on the fifth day after the left lumbar region had been opened the patient developed psoas spasm. Because the left perinephritic space was draining adequately, it was thought that the pus had pocketed at a lower level along the psoas

muscle. An incision was made parallel with Poupart's ligament down to the peritoneum. Retroperitoneal dissection upward met with a pocket of pus which was drained.

The patient's temperature immediately dropped to normal and after a short convalescence, during which Dakin's irrigations were employed, the patient left the hospital with the wound practically healed.

Treatment of perinephritic abscess consists of adequate surgical drainage, which results in cure in practically every case of extra-renal origin.

DISCUSSION

DR. T. H. SWEETSER called attention to the occasional difficulty in differentiating between a perinephritic abscess and a degenerating renal tumor, and the occasional presence of a perinephritic abscess in association with and secondary to a degenerating renal tumor. Such a degenerating tumor may cause leukocytosis, fever, and most of the symptoms of toxicity seen in patients with abscess. Such a tumor, if large, may also cause obliteration of the psoas abscess in the roentgenogram.

DR. L. G. RIGLER (by invitation) said he felt that Dr. Manson had mentioned the more important points. There was one he wished to add, however, and that was that other things than perinephritic abscess will obliterate the psoas muscle shadow, such as polycystic kidney, neoplasm or hydronephrosis. Dr. Rigler recalled a recent case seen at the University Hospital, and stated that massive hydronephrosis can cause this same appearance. Nevertheless, in the presence of other symptoms suggestive of an inflammatory process this sign is very important. One should keep in mind obliteration of the psoas shadow in the recognition of perinephritic abscess.

DR. WANGENSTEEN thought that the students were well aware of the fact that the differential diagnosis of perinephritic abscess or lesions that mimic it could not always be decisively made, and related the instance of a case that had been thoroughly studied and presented to the students as a case of renal neoplasm. When the patient was operated upon, he had a perinephritic abscess. It was Dr. Wangensteen's impression that the faculty were inclined to be a little more lenient with the students if they hedged a little on this differential since this case had been observed at the clinic.

DR. O. S. RANDALL (by invitation) read a paper on The Diagnosis and Treatment of Actinomycosis.

The diagnosis and treatment of actinomycosis is of prime importance in Minnesota, Dr. Randall stated, as the disease is very prevalent in the Mississippi Valley states. To understand the various manifestations of the disease one must review the essential points in its pathology.

Actinomycosis is a granulomatous infection caused ordinarily by the streptothrix. It occurs most often in human beings and in cattle and is prone to become slowly progressive and extensive and assume a chronic course. After the infection is once established, it tends to extend by continuity and contiguity to involve any tissues with which it may come in contact. The one exception to this rule is the lymphatic system; although the regional nodes may become somewhat hyperplastic, they are only involved in the generalized type by this process. Therefore, practically the only mode for metastasis is through the blood stream, which mode is infrequent.

A very definite and fairly constant tissue reaction is set up by the infection. Two processes take place; one, the reaction by formation of dense fibrous tissue, and second, the degenerative process due to the invasion of the connective tissue by the fungus. These two are going on simultaneously—the former is a tendency to walling-off, and the latter is the advancement by suppuration, degeneration or liquefaction. The fungus colonies occupy the center of cellular activity where there are large masses of polymorphonuclear and mononuclear leukocytes, and epithelioid cells and inflammatory tissue rich in young blood vessels. When softening occurs, there is a tendency toward extensive lipoid degeneration with the production of abscesses and cavities and pus channels filled with purulent material containing yellow granules (sulphur granules). Microscopically this cellular portion may contain numerous multinucleated giant cells very much like the Langhans type. The healing process is characterized by the formation of large collections of fibrous tissue.

Regardless of where the primary invasion takes place, the process from there on gives the same pathological picture. Although Siegmund believes that actinomycotic lesions do not tend to heal, it is held by most authors that the older lesions may heal by cicatrization and by the dying out and absorption of the microorganisms. McGlannan stresses the fact that the primary focus may disappear entirely while the infection is spreading. Therefore, in some cases—in fact in a large majority—it is impossible to determine the original point of inoculation of the disease.

With these points in mind the discussion of the disease in various localities of the body becomes simplified. We ordinarily divide the disease into four types with the understanding that they may or generally do overlap one another if the course becomes extensive. The cervico-facial type is encountered in about 60 per cent of the cases; the thoracic in 14 per cent, and the abdominal in 18 per cent, with a small number of cases comprising a miscellaneous series.

The mode of infection is a debatable question. It is held by some that the disease is caused by organisms of the soil, grasses, and grains. This is substantiated by the fact that about 50 per cent of the cases are found among the rural classes. However, Lord and Wright maintain that the organism is a normal inhabitant of the gastrointestinal tract and that trauma is a very important causative agent in the inoculation.

From most textbooks today one gains the impression that the diagnosis of actinomycosis is a fairly easy one. However, Dr. Randall doubts if this is the experience of a great many, for there are any number of cases referred to general hospitals with the diagnosis of malignancy, tuberculosis and syphilis. The finding of sulphur granules is said to be pathognomonic. However, similar granules are found in chronic staphylococcus infections and others. Smears of the pus containing the crushed granules are supposed to be very reliable. True, they are, when positive, but it is often very difficult and time-consuming to reach the diagnosis by this method. The organisms are very difficult to culture and the method is somewhat impractical on the ordinary laboratory media. Serologic tests have so far been impractical.

Regardless of what method one uses, he should remember that the obtaining of a proper specimen is essential. It is the one who first observes the abscess of actinomycosis who has the best opportunity to make a correct diagnosis. These abscesses usually contain only a few cubic centimeters of pus which holds the actinomycotic colonies. After these abscesses have ruptured and a sinus persists to drain pus, it is very unlikely that one can find the colonies in such exudate.

Dr. Randall stated that for some time at the University Hospital, after incision of the abscesses the pus has been collected and centrifuged for about thirty minutes according to the type of pus present. It is then embedded in paraffin and microscopic sections are then made in the usual manner for making sections of tissue. The slide may then be studied for the large colonies characteristic of the ray fungus. Hematoxylin eosin and Gram's stains are used. The mycelia are Gram-positive.

For the most part conservative therapy, consisting mainly of saturated solution of potassium iodide and

deep X-ray and radium, has been more or less unsuccessful in curing many of these cases. Therefore, in their recent cases they have attempted to eradicate the lesion by wide excision and drainage of all the affected area. The most important difficulty in the surgical removal of the lesion is the extreme vascularity of the involved portion; but if one is able to stay on the outside of the infected area, the excision is done with ease. During the last two years, five cases of actinomycosis have been treated in this manner and they are all improved or cured at this time.

The first case was a man forty years of age, with actinomycosis of the cheek. This was radically excised by the use of the endotherm. He has remained well without recurrence for two years.

The second case was in a man forty-three years of age with actinomycosis abscess at the base of the tongue. This was incised and drained. He made an uneventful recovery. Upon discharge he was given 140 per cent S.E.D. to the involved region in four treatments over eight days. There has been no evidence of recurrence.

The third case was a woman twenty-nine years of age with cervico-facial actinomycosis. This was widely excised, along with the submaxillary gland and a portion of the sternocleidomastoid muscle. When the patient was seen four months later, there was only a small abscess present. This was also completely excised, with immediate healing.

The fourth case was in a woman twenty-nine years of age with actinomycosis of the left pleura, chest wall and breast. This necessitated several operations and in doing so a large portion of the chest wall and pleura was excised as well as a portion of the breast to give adequate drainage. The patient was last seen a month ago. There is only a small sinus present. She is fever-free, feels well, and has gained weight.

The last case was a man forty-six years of age with a typical actinomycosis of the face and neck. This was radically excised. He still has some infection present and will probably need further excision but he can be kept under observation to limit the spread to the neck and to attempt to prevent spread to the lung and mediastinum.*

DISCUSSION

DR. O. W. YOERG stated that actinomycosis is frequently not diagnosed because it is an uncommon disease. In sections made in the laboratory, the actinomyces bodies are frequently not discovered, and he was of the opinion that it would be advisable to acquaint the laboratory of a suspected diagnosis of actinomycosis and have them make a diligent search. Sometimes one has to look a long time to find the bodies on which to make the diagnosis.

DR. WANGENSTEEN said he wanted to emphasize the point made by Dr. Randall relative to the advantage in diagnosis of the physician who sees the patient first. Dr. Wangensteen related the instance of a man who was referred with the diagnosis of carcinoma of the cheek. There was no evidence of an epithelial lesion within the mouth. The swelling in the cheek was aspirated with the idea in mind that it was probably actinomycosis. Sulphur-like granules were obtained and microscopic examination of the granule in a drop of water on a glass slide showed the actinomyces. The next morning Dr. Wangensteen said he demonstrated this patient to his class, and reaspirated the lesion with a needle but was unable to find the ray fungus. In a lesion that has once been tapped and has continued to drain, the organisms may be very difficult to demonstrate. The embedding of the sediment in paraffin, and examination of a block of tissue cut and stained with hematoxylin and eosin as outlined by Dr. Randall, was much more certain of success.

*This patient was recently admitted and one of the sinuses curetted, but no evidence of a persistent lesion was found.

Concerning treatment, Dr. Wangensteen stated that prior to 1929 their results with conservative treatment as the principal therapeutic agent (X-rays and potassium iodide) were poor. Dr. Wangensteen said that he informed the man with the lesion on the cheek that he had "lumpy jaw" and believed that the lesion was best excised. The patient was a farmer and said that his cattle with "lumpy jaw" went to South St. Paul and he was prepared to accept anything advised. Of the five patients with actinomycosis seen since then, all have been submitted to surgery and all are well. One of these was a case of extensive actinomycosis of the left lung, thoracic wall and breast (lantern slides shown), necessitating four operations. Dr. Wangensteen said he felt that if abdominal actinomycosis was treated radically by surgery the results would be very much better. The disease usually leaves the cecum, where it originated, and invades the abdominal wall. Dr. Wangensteen believed that if surgeons would buckle up their courage and go after these cases of thoracic and abdominal actinomycosis (if not generalized) there would be many more cures. On looking through the literature of actinomycosis, one could not escape the impression that the results of treatment were better forty years ago before the X-rays were discovered. Too much reliance upon the value of X-rays as a therapeutic agent in these cases, Dr. Wangensteen felt, had contributed to failure in obtaining consistently better results.

Dr. Wangensteen was asked whether he used potassium iodide.

DR. WANGENSTEEN replied that they did use it, but felt that incision, curettement, drainage and excision were the most important. As a single therapeutic measure, he felt that potassium iodide was of doubtful value. X-rays and potassium iodide should be looked upon as adjunct measures in the treatment of actinomycosis. Schlange pointed out in 1892, that actinomycosis now and then exhibits an unusual tendency to get well spontaneously if afforded adequate drainage.

DR. RUDOLPH W. KOUCKY (by invitation) read a paper on The Treatment of Lung Abscess.

Dr. Koucky reviewed the results of management of lung abscess at the University Hospital and the results as reported in the literature.

At the University Hospital in the years 1928 to 1932 there had been 33 cases of lung abscess diagnosed either clinically or at autopsy. It was pointed out that not all these cases could be regarded as clinical lung abscess. Only 18 of the group had been admitted with the chief complaints referable to their abscess. Of the remaining group, four came in for treatment of empyema secondary to the abscess, two for the removal of a foreign body, one had carcinoma of the larynx, and the remainder had various conditions such as pyemia, diabetic coma, actinomycosis, malignancy, and terminal conditions in which the lung abscess was frequently found only at autopsy. There were fourteen deaths in the group. Two died after attempts to drain a metastatic brain abscess; one died after drainage of an empyema and one died suddenly after the first stage of a thoracotomy. Eight of the ten other deaths occurred within two weeks after admission. It was felt that this type of case could not be grouped with the clinical cases of lung abscess.

The types of treatment and results were outlined. Four cases were treated as empyemas; one died of a brain abscess; two were cured except for a residual bronchiectasis, and one was still under treatment. Six patients were treated by bronchoscopy. Two had foreign bodies removed and improved greatly; two others were completely cured; one remained unchanged and refused surgical treatment; one was greatly improved but required surgical drainage later. Five cases came to surgical drainage. Of these five, one died suddenly on the second day after the preliminary stage without

apparent cause. (This patient had a marked fibrosis of both lungs and a severe bronchitis at autopsy and it was felt that the diminution in vital capacity was contributory to her death.) One died some time after drainage and was proved to have carcinoma of the lung as the cause of the abscess. Two were cured, but one of these still had a fistula and one case was still under treatment but was progressing satisfactorily. There were 11 other cases which were not terminal cases and these had only medical management. Two of these died, each with a brain abscess; one was unimproved, and eight were improved. Of the eight discharged as improved, four were heard from subsequently and were symptomatically cured.

Pneumothorax had been used in one case. This was a patient having a central abscess draining into a bronchus and the pneumothorax was used to supplement bronchoscopic drainage.

Arsphenamine had not been used in any case.

A review of the end-results of various forms of treatment abstracted from the literature was next presented.

Medical management was shown to have a possibility of cure in 10 to 50 per cent of instances. This variation in statistics was thought to be due perhaps to the acuity of diagnosis. Cases diagnosed as pneumonia which went on to recovery reduced the incidence of cure of lung abscesses statistically. Under medical management were included bed rest, transfusions, postural drainage, high caloric diet, vitamins in the form of cod liver oil, orange juice and tomato juice, heliotherapy, and adequate nursing.

It was stated that arsphenamine was not generally recommended. In a paper presented before the American Association of Thoracic Surgery, five men who discussed the work definitely stated that they had failed to obtain results by this method.

Four hundred and forty-seven collected cases of bronchoscopic drainage were reviewed. The percentage of cures in this series ranged between 46 and 54 per cent. The central abscesses readily reached by the bronchoscope were particularly favorable; whereas the peripheral type often failed to respond to this treatment.

Hedblom's series of cases treated by thoracotomy were next presented. This author has had 114 personally operated cases with 66.6 per cent cures and 23.6 per cent mortality. In 714 cases collected by Hedblom, there were cures in 27 per cent and a mortality of 16.1 per cent. Many surgeons, whenever thoracotomy is indicated, feel that it should be done early (in the sixth to eighth week) because at this stage dense fibrosis about the abscess has not occurred and the cavity is relatively simply collapsed. The incidence of secondary bronchiectasis, moreover, is diminished by early operation. Some cases of chronic abscess require secondary operations to obliterate the cavity.

In closing, the following points were presented:

1. Intensive medical treatment is necessary and results in cures up to 50 per cent.
2. Bronchoscopy is of greatest value in central abscesses and yields about 50 per cent cures.
3. Surgical drainage when indicated should be done early. It is recommended for peripheral abscesses which do not respond to conservative measures within six to eight weeks. About 65 per cent cures are reported in the best series.

DISCUSSION

Dr. T. J. Kinsella stated that this is one field in which coöperative effort between the medical man, the roentgenologist, the bronchoscopist and the surgeon is very important. To treat a lung abscess medically for a long period of time, meanwhile overlooking the foreign body which caused the abscess, is certainly not serving the patient's best interests. To institute very radical surgical procedures for the treatment of a lung abscess resulting from a degenerating pulmonary carcinoma is likewise scarcely warranted. A fair number of centrally located abscesses will drain themselves spontaneously and go on to complete healing. Others in the same position during the subacute stage, and an occasional one during the chronic stage, may be successfully treated by bronchoscopic aspiration alone. The fundamental point here, as in the treatment of abscesses elsewhere, is adequate drainage. Prolonged suppuration predisposes to carnification of the lung with secondary bronchiectatic changes. Surgery should probably be avoided in the acute stage where medical supportive measures, postural drainage, and bronchoscopic aspiration should be utilized; however, if results are not obtained in eight to twelve weeks, surgical drainage should be instituted, particularly in the peripheral type of lesion.

Dr. Wangensteen said that in Dr. Koucky's series one patient with chronic abscess of the lung of a year's duration was treated successfully by bronchoscopic aspiration alone. One of the patients with gangrene referred to by Dr. Koucky in his report had an interesting history. The patient had been successfully treat by his family physician for a central lung abscess communicating with a bronchus, by pneumothorax. The patient improved rapidly and left the hospital. One day he became suddenly ill again, and it was found that the lung had re-expanded. He was admitted to the University Hospital with a foul bloody sputum and a diagnosis of gangrene of the lung was made. The patient did not survive for more than a few days. In some cases with pulmonary gangrene, Dr. Wangensteen said arsphenamine had been used with good results.

The role of bronchoscopy in the treatment of pulmonary suppuration, Dr. Wangensteen felt, could not be overemphasized and related the instance of a patient who had no sputum and in whom bronchoscopy had consequently not been employed early. It concerned a boy of 17 years who had pneumonia in June, 1931. Fever continued after convalescence and the patient spent the summer in Colorado under suspicion of having tuberculosis. In November he was sent back with a diagnosis of encapsulated empyema. The roentgen examination, as well as the physical findings, appeared to substantiate this condition. Aspiration was done and a serous type of fluid was obtained from which the streptococcus was isolated. A thoracotomy was done over the lower right chest, where the X-ray showed the density to be. The pleural cavity was free. Believing the collection to be interlobar and wishing to avoid contaminating the free pleural space, a pack was inserted over the parietal pleura and the skin was closed. A subsequent thoracotomy showed no exudate between the lobes of the lung. The fluid was negative for tuberculosis on guinea pig inoculation. Lipiodol filling of the lung showed an obstruction to the right lower bronchus. Bronchoscopy revealed the bronchus to be plugged with granulation tissue. After bronchoscopy the fever promptly remitted and the boy gained weight and has remained well. A subsequent lipiodol filling revealed bronchiectasis. Dr. Wangensteen believed that an unresolved pneumonia had been present here. The pathologists reported the removed tissue to be carcinoma, but changed their minds when informed of the patient's age. Metaplasia of the bronchial epithelium in infection, Dr. Wangensteen said, may occasionally be confused with carcinoma of the bronchus or lung.

Dr. J. R. Paine (by invitation) read a paper on Constant Suction by Nasal Catheter as an Adjunct in Postoperative Treatment.

Dr. Paine stated that the following material was part of some work which has been done during the past year at the University Hospital in an attempt to

make postoperative convalescence more pleasant for the patients subjected to abdominal surgery. In particular it has been an attempt to control more adequately postoperative nausea, vomiting and distention, and to diminish the number of enemas which patients required.

The method used, Dr. Paine explained, was the application of a suction apparatus to a Levine nasal catheter, which was passed into the stomach through the nose. These catheters were inserted after operation at intervals varying from a few minutes to two days. The length of time suction was applied varied from one to fifteen days.

Over a period of three months, routine nasal suction was applied postoperatively to forty-eight cases classified as follows:

Herniotomies	7
Biliary cases	9
Appendectomies	10
Gastric cases	8
Intestinal cases	5
Miscellaneous	9
Total	48

Dr. Paine proceeded to give an analysis of the cases as follows:

Of the *hernias*, six were inguinal, one incisional. There were no mortalities. Ages varied from nineteen to fifty-seven. The average period of suction was two to two and one-half days. The suction was applied to the incisional hernia case for one day only. The average morphin dosage was ¼ grain for the whole period of suction. None of the patients had bowel movements. Two of the inguinal hernias required one enema each; one required three enemas. Of the six inguinal hernias, four had no distention, no nausea and no vomiting. One had marked distention when suction was applied, but this was relieved after a few hours. The patient had no nausea or vomiting. One patient had slight nausea and 100 c.c. of vomiting when the suction was first applied. Both the nausea and vomiting were relieved. There was no distention in this case. The patient operated for an incisional hernia had moderate nausea and distention when suction was first applied but both were relieved after a few hours. In this case there was no vomiting.

Of the *gallbladder* operations, six were cholecystectomies, two were explorations and drainage of the common duct, and one was a choledu odenostomy. There was one death in this group. A patient who had a drainage of the common duct died four weeks postoperatively. Ages ranged from twenty-five to fifty-four. The average period of suction for these cases was:

Cholecystectomies	2.5 days
Common duct cases	3 days
Choledu odenostomy	4 days

The average morphine dosage for each case was 1 to 1.5 grains. Following cholecystectomy one patient had one bowel movement. After exploration and drainage of the common duct the patient had one bowel movement. One patient, following choledu odenostomy had two bowel movements. Two of the six patients having cholecystectomy were given one enema each. The common duct cases were given three enemas; one case one, and the other, two. Three enemas were given in the case of the choledu odenostomy. There was no distention in any of the patients receiving cholecystectomies. All six were nauseated but four of the six were relieved of all their nausea a short time after suction was started and experienced no vomiting. The other two had a slight amount of vomiting. The common duct cases showed no distention. One had no nausea or vomiting. The other had slight nausea and an emesis of 225 c.c. during one out of six days that suction was maintained. The choledu odenostomy patient had slight distention, nausea, and vomiting.

Of the ten *appendectomies*, two were interval appendices and eight were acute appendices. There were no deaths. Ages ranged from sixteen to fifty-nine. The average period of suction was two days in the interval cases and three to three and one-half days in the acute cases. The average morphin dosage was 0.5 grain for the interval cases and 1 grain for the acute cases. Neither of the interval cases had any bowel movements. One of the acute cases had one bowel movement. Neither of the interval cases required enemas. Two of the acute cases required one enema each, and two required two enemas each.

Neither of the interval cases was distended. Both were nauseated slightly and one had an emesis of 300 c.c. Three of the acute cases had no distention, nausea, nor vomiting. Two were markedly distended when suction was applied but were quickly relieved and experienced no nausea or vomiting. One patient was not distended and had no vomiting but was slightly nauseated. Two patients were not distended but were slightly nauseated and had emesis of 50 c.c. and 150 c.c.

Of the eight *gastric* cases reported in this series, five were resections of the stomach and one was a simple gastroenterostomy. These six patients were operated on for either carcinoma of the stomach or benign peptic ulcer. The other two cases were perforated duodenal ulcers.

The mortality from perforated duodenal ulcers was 100 per cent. One of these patients was a sixty-three-year-old man who entered the hospital forty-eight hours after rupture of the ulcer and died forty-six days later from diffuse peritonitis. The other was a fifty-year-old man who died thirty days after closure of the perforation, of coronary thrombosis and erysipelas.

One case (gastroenterostomy) was a fifty-nine-year-old woman with cancer of the stomach who died 29 days after operation of cachexia and weakness. The death in the resection group occurred in a sixty-four-year-old man who died fourteen days postoperatively of pneumonia and a large gastrojejunal ulcer after resection of the stomach.

The ages in all the gastric cases varied from forty to sixty-three. The average period of suction was ten and one-half days for the ulcer cases and four days for the gastroenterostomy cases. The average morphin dosage was 1.5 grains for the ulcer and resection cases. No bowel movements occurred in any of the gastroenterostomy cases. Four bowel movements occurred in one ulcer case and seven in the other. Only three enemas were required in the whole group, one in each of the three gastroenterostomies.

No distention, nausea, or vomiting was present at any time in three of the gastroenterostomies. One patient was distended following gastroenterostomy but was promptly relieved by suction. This patient had no nausea or vomiting. The other two enterostomies were not distended but had moderate amounts of nausea and vomiting.

In the perforated ulcer cases no nausea, vomiting or distention occurred in the instance of the fifty-year-old man who developed erysipelas and died 30 days postoperatively. In the other patient who died 46 days after operation for an ulcer which had been ruptured 48 hours, there was a moderate amount of distention and nausea and vomiting late in the course. In this case suction was maintained for fifteen days immediately postoperatively and at irregular intervals later in the course of his illness. It was the feeling of the surgical staff that the suction controlled his distention fairly well and that it was one of the chief causes of his living as long as forty-six days.

The *intestinal group* of five cases composed a varied type of case, all of which required enterostomy to control distention and vomiting before the surgical staff began to use nasal suction. Diagnoses included were three closures of fecal fistulas, one intussusception, and

one sigmoid resection. The average period of suction was three to four days. There were no deaths. The average morphin dosage was 2.5 grains. One out of three fistula patients had one bowel movement. The resection of the sigmoid one had two, and the intussusception four. The resection of the sigmoid required two enemas and one fecal fistula case required one.

Of the three patients with fecal fistulas none had any distention. One had no nausea or vomiting. One had marked nausea and vomiting when suction was begun, but was relieved. One had slight nausea and vomiting. The intussusception one had no distention. Moderate nausea and vomiting was relieved when suction was begun. The patient undergoing sigmoid resection had no distention, but was slightly nauseated and vomited a moderate amount.

The *miscellaneous* cases were of such a varied nature that time had not permit of a detailed analysis. In these cases suction was applied usually because the patient complained of nausea, vomiting, or distention. Out of eleven cases failure to relieve the symptoms was experienced in three.

Dr. Paine's conclusions after comparing the above cases with an equal number of similar cases treated in the same manner except for the suction were as follows:

1. Appendectomy and hernia patients probably did a little better, as far as nausea, vomiting and enemas were concerned, with nasal suction than without it, but probably not enough better to warrant subjecting the patient to retaining the nasal tube in his nose for several days and postponing his return to fluids and food by mouth.
2. Patients having operations on the biliary tract showed a distinct improvement in their postoperative convalescence when nasal suction was applied. Distention was practically done away with. The frequency of nausea and vomiting was decreased, and the number of enemas required was much less. Nasal suction for two to four days was advised as a routine postoperative measure.
3. Following gastric operations nasal suction was recommended as a routine procedure for the control of distention, nausea, and vomiting. These rarely occurred if suction was applied, and enemas could practically be done away with. In gastric operations it was Dr. Paine's observation that patients received more comfort from nasal suction than any other group of cases.
4. In operative procedures on the gastrointestinal tract, which usually called for an accompanying enterostomy at a slightly higher level, if nasal suction was applied immediately after operation the patients did satisfactorily without the enterostomy.
5. It was recommended that any postoperative distention with or without nausea and vomiting be taken as an indication for the use of nasal suction. Many patients went for many days without a bowel movement and without complaint when nasal suction was used postoperatively.

DISCUSSION

Dr. Wangensteen said that an inverted bottle was used so that the amount of gas escape could be measured. The amount of gas and fluid drainage after enterostomy for acute intestinal obstruction Dr. Wangensteen believed to be correlated more with the degree of the obstruction than with the level of the obstruction. The method had been used successfully at the University Hospital in decompressing patients with simple obstruction of the intestine. In nine of ten patients with acute mechanical obstruction without compromise of the blood supply, decompression had been effected successfully by nasal catheter suction syphonage without operation. Dr. Wangensteen stated that the method had its greatest worth in adhesive obstruction and showed a patient in whom a complete obstruction (adhesive) developed after operation for acute suppurative appendicitis and was successfully decompressed by suction alone without operation. Dr. Wangensteen stated that even when the decompression was slowly accomplished by suction, relief from pain was almost immediate after the institution of suction. Dr. Wangensteen felt that it was necessary, therefore, to check these patients with acute bowel obstruction, in which the method was used, frequently by X-ray examination to note whether decompression of the intestinal distention was progressing satisfactorily. The appearance of gas in the colon indicates that the continuity of the intestinal current has been re-established. The method should not be employed in simple obstruction of the left colon, Dr. Wangensteen stated, because the competent proximal ileocolic sphincter limits the distention to the colon. In such instances cecostomy or appendicostomy should be done at once. In all strangulation obstructions heralded by the presence of rebound tenderness as well as intestinal colic, Dr. Wangensteen said that immediate operation is to be advised.

Dr. Paine was asked what size catheter is used.

Dr. Paine said a No. 14 or No. 16 is used.

Dr. Paine was asked how long the catheter should be?

Dr. Paine replied that they are about four feet long.

Dr. Wangensteen said they had recently had one patient who had been operated upon in the upper abdomen three times previously, on whom the method was used postoperatively and who was in a position to judge the merits of the method. He said that he didn't know that one could be so comfortable after an operation on the stomach.

Dr. Louis Sperling (by invitation) read a paper on The Distention Feature in Simple Obstruction.

The consequences of simple obstruction, Dr. Sperling stated, can be directly attributed to the effect of distention. Recognizing this, our treatment of this type of ileus is directed first toward the relief of distention and then toward removal of the obstructing agent. In many cases, especially of the adhesive type, if the distention is relieved the obstruction will take care of itself.

Distention plays its most important rôle in low ileal and colonic obstructions. In high obstructions (pyloric) the course is much shorter; death is due to a disturbance in the mineral balance and there is not time enough for distention to develop.

What is the mechanism of the production of distention? Assuming that the obstruction is in the terminal ileum and complete in nature, this is the sequence of events as seen in the experimental animal. Stasis develops as the result of the obstruction. The bowel then endeavors to overcome this stasis by increasing its peristaltic rushes. Accompanying this increase of intestinal activity there is an outpouring of secretions into the intestinal lumen. In a very few hours gaseous distention of the bowel above the site of obstruction may be demonstrated by X-ray. This is due to stasis and has been shown by Dr. Wangensteen and others to be largely swallowed air. The increase of secretions and gaseous content of the bowel augments the intra-intestinal pressure, giving rise finally to distention.

The effect of distention on the function of the bowel is very important. Dr. Sperling in the experimental laboratory has confirmed the work of German investigators which showed that absorption in intestinal obstruction is always decreased and eventually nil. When it is considered that the amount of fluid excreted into the bowel in twenty-four hours (bile, pancreatic and intestinal juices) comprise a high percentage of the entire amount of fluid in the body, and that normally most of this is absorbed, while in obstruction there is a marked disturbance in absorption, it is at once evident why it is so important to give patients with intestinal

obstruction subcutaneous and intravenous fluids and saline.

This disturbance in absorption can be demonstrated within the first twenty-four hours of simple obstruction and affects the absorption of gas as well as fluids. Under normal conditions much of the gas in the bowel is eliminated through the lungs after being absorbed into the blood stream, and only a relatively small quantity (10 per cent) escapes per rectum. In obstruction with decreased absorption there is, therefore, a progressive increase in the amount of gas in the bowel producing distention.

Dr. Sperling attempts to explain this disturbance of absorption by the increase of intra-enteric pressure with its effect on the circulation to the bowel.

What are the pressures which prevent absorption in the distended bowel, and are such pressures seen clinically in intestinal obstruction? In the experimental laboratory, Dr. Sperling has found that absorption is very limited when the intra-enteric pressure is maintained above 60 mm. Hg. In general it may be said that absorption from the intestine varies inversely as the intra-enteric pressure.

Kocher, in 1898, was the first to show that with increased intestinal pressure there resulted a decrease in the blood supply to the part affected. Von Zwalenberg, Gatch and others have shown that the blood supply is cut down correspondingly as the pressure is increased. Therefore, in distention, absorption is decreased, due to impairment of circulation brought about by increased intra-intestinal pressure.

The intra-enteric pressure in simple obstruction has been measured both clinically and experimentally. Stone and Firor found a pressure of over 150 cm. of water (equivalent to 115 mm. Hg.) in a case of low ileal obstruction of five hours' duration. Experimentally, the normal intra-intestinal pressure has been shown to vary between 1 and 4 cm. of water. In obstruction the sustained pressure is between 6 and 8 cm. of water, but during activity of the obstructed bowel the pressure may mount as high as 60 cm. of water or over 50 mm. of Hg. (Owings, MacIntosh, et al.). McIver has measured a pressure of 54 mm. of Hg. in closed loops. These pressures are not much below the pressures which Dr. Sperling has shown prevent absorption in the normal bowel.

It has been demonstrated experimentally by Raine and Perry that increasing the distention in obstructed rabbits by filling the gastro-intestinal tract with albolene hastens death. Decreasing the distention by means of enterostomy prolongs life. It has been shown by Drs. Wangensteen and Leven that by anastomosing the obstructed loop to the stomach (thus allowing the animal to vomit and so empty the loop), life is prolonged three times as long as compared in animals with only the simple obstruction.

By interfering with the normal blood supply, distention and increased enteric pressure sooner or later affect the viability of the bowel and, as has been claimed by several investigators, may result, in extreme cases, in gangrene of the wall. Experimentally, if a pressure of 60 mm. of Hg. is maintained in a loop of bowel for a period of time, there results a venous congestion. This may account for the rubor and discoloration often seen at operation. A congested appearance of the bowel has been noted in every case of experimental obstruction. Though actual necrosis has not been observed in this experimental laboratory, it has been reported by other workers.

The effect of distention on the viability of the intestinal wall is best illustrated in the large bowel when the obstruction is in the sigmoid colon. A closed loop is formed, due to the competency of the proximal ileocecal sphincter. The intra-intestinal pressure rapidly mounts, due to incoming gas and fluid which cannot escape. More gas is formed by fermentation and eventually the pressure is sufficient to cut off the blood supply to the intestinal wall with resulting gangrene and sometimes perforation of the cecum.

In summarizing, then, the sequence of events in the production of distention may be outlined as follows:

Obstruction
Stasis of fluids and gas
Hyperperistalsis and increased enteric secretion
Increase of intra-enteric pressure
Failure of absorption
More intra-enteric pressure
Distention.

Dr. C. H. Mead (by invitation) read a paper on Non-specific Mesenteric Lymphadenitis.

Dr. Mead opened his discussion of this condition by citing a case encountered upon the surgical service of the University Hospital in 1929.

The case was that of a male child, aged three, who had complained of abdominal pain for one week previous to admission to the hospital and had developed anorexia. He was seen by his family physician one day before admission to the hospital, and a temperature of 102° Fahrenheit was recorded, as well as tenderness in the right lower quadrant of the abdomen. His condition seemed to be becoming worse steadily. No nausea, emesis, diarrhea, or constipation had occurred. The past history was negative. Physical examination revealed a distended abdomen with questionable rigidity and tenderness in the right lower abdomen. No rebound tenderness was noted. No abdominal mass was palpated. Rectal examination was negative. All laboratory data and X-ray examination of the chest were negative. A diagnosis of subsiding acute appendicitis was made. Operation was performed and a normal appendix encountered. There were, however, numerous hard lymph nodes throughout the right aspect of the mesentery. One group was so large that it felt like a lobulated kidney. They were apparently inflammatory in character, and most of them were located along the intestinal border of the mesentery. No biopsy was performed. An operative diagnosis of acute adenitis of the mesenteric nodes of unknown origin was made. The patient's immediate convalescence was essentially uneventful.

Dr. Mead then discussed this peculiar abdominal condition and stated that it had been described clinically as "strumous" abdomen early in the 19th century, but that its presence during life was usually a diagnostic conjecture. The condition was considered to be very uncommon and was regarded as a pathological curiosity as recently as 1905. All necropsy findings during this early period indicated that the condition was tuberculous in origin. In the early 20th century the condition began to attract surgical attention, as enlarged mesenteric lymph nodes were quite frequently encountered as the only apparent etiological factor in the production of acute abdominal symptomatology. The nodes described were usually necrotic, caseous or calcified in appearance and all of them were considered to be tuberculous in origin. About ten years ago, however, attention was directed to a similar condition of enlargement of these nodes in which the gross picture, pathologic and bacteriologic studies failed to show evidence of tuberculosis, but often showed lymphoid hyperplasia and pyogenic organism. Consequently a moderate literature has grown up about this condition as an entity, separate from the tuberculous mesenteric lymphadenitis.

Dr. Mead then presented a lantern slide showing a tabulated comparison of the two conditions, tuberculous and non-specific mesenteric lymphadenitis, comparing the frequency of occurrence, age incidence, symptomatology, physical findings, laboratory data, treatment, complications, etiological factors, sources of infection, pathology, and pathological anatomy. He then presented a lantern slide illustrating the normal lymphatic drainage of the small intestine and the location of the

lymph nodes in this region. Further slides were shown illustrating the appearance of the enlarged non-specific lymph nodes when encountered in the mesentry, and the appearance of the nodes when encountered in a later and calcified condition.

Reference was then made to the case which had been cited, in which Dr. Mead stated that recent follow-up examinations of the child showed a 3 plus Mantoux test, and X-ray findings of calcified mesenteric lymph nodes. He believed that this case, which at first appeared to be a non-specific adenitis, now seemed to be one of tuberculous adenitis, and that it was illustrative of the fallacy of premature generalizations.

Dr. Mead stated that the occurrence of so-called non-specific mesenteric lymphadenitis had raised a question as to the normal size of the lymph nodes of the mesentery at different age periods, as any statement regarding enlarged nodes was inadequate without some standard, or normal, for comparison. Consequently, an investigation is under way at the present time to determine the normal sizes of such lymph nodes. Material is difficult to collect, a total of fifty-two satisfactory cases having been obtained to date. Analysis of twenty of the cases has been completed to date, with individual dissections and weight determinations for each node in the mesentery, the total number of nodes so treated numbering 2,582. Preliminary statistical examination of this data tends to show that the size of the nodes increases until twelve years of age, thus following quite closely the general growth curve of lymphoid tissue.

Dr. Mead concluded that mesenteric lymphadenitis of an acute nature could not usually be differentiated clinically from the findings of acute appendicitis; that non-specific mesenteric lymphadenitis was probably a stage of tuberculous adenitis; that research regarding the normal size of these nodes at different age periods tended to show a growth curve following that of lymphoid tissue elsewhere in the body.

Dr. Owen H. Wangensteen read a paper on A New Operation for the Repair of Inoperable or Recurrent Inguinal Hernias.

Dr. Wangensteen stated that somewhat more than a year ago he had operated upon a young woman with a desmoid tumor in the lower portion of the left abdomen. It was found at operation to arise in the internal oblique muscle and the transversalis fascia and had a slight attachment to the external sheath of the rectus. Its removal necessitated sacrifice of the entire lower portion of the internal oblique muscle with a part of the transversus abdominus muscle together with the entire transversalis fascia in the groin, as well as the lateral border of the rectus sheath. It was apparent that no local sliding of tissue would suffice to close the defect. In casting about for a method by which the defect might be repaired, Dr. Wangensteen stated he hit upon the plan of swinging a flap of fascia lata up from the thigh. The procedure worked so satisfactorily that Dr. Wangstensteen said he had adapted it to the repair of recurrent or inoperable hernias in the groin.

Including the patient with the desmoid tumor, seven cases had been operated upon in this manner, all of which have been successful. One of these was a man of fifty-seven years operated upon three times previously for direct inguinal hernia by three diferent experienced surgeons. At the time of examination there was a distinct bulge in the groin, no trace of the inguinal ligament being found in the lower half of its normal course. In effect both a direct inguinal and a femoral hernia were therefore present in this case.

The technic of this procedure was illustrated by a few lantern slides. Dr. Wangensteen said he made a slightly curved incision on the antero-lateral aspect of the thigh of the same side, the convexity of the incision being directed medially. The incision is begun about three inches below the anterior superior spine and extends downward somewhat past the midportion of the thigh. The adjacent skin margins are somewhat undercut and a vertical incision is made through the fascia lata just lateral to the sartorius muscle extending the entire length of the skin incision. At the lower angle of the wound, a fascial flap is raised by cutting the fascia lata transversely in a posterior direction for about 4 inches. A vertical incision extending upward is then made at the posterior margin of the flap. In this manner a generous piece of fascia with the tensor fascia lata muscle incorporated within it above is raised up. The inferior surface of this fascial flap is smooth; its attachment to the intermuscular septum between the vastus lateralis and the rectus femoris muscle is cut, as the flap is mobilized. Its superior aspect is covered with fat. The tensor fascia lata muscle at the base of this flap has its own nerve and blood supply, *viz.*, branches of the superior gluteal nerve and artery.

In the repair of the defect persisting after excision of the desmoid, Dr. Wangensteen stated that he had pulled this fascial flap beneath Poupart's ligament with its fatty surface beneath in contact with the parietal peritoneum. In the repair of hernias, however, he had found it most convenient in utilizing the conjoined tendon and the arched fibers of the internal oblique to pull this fascial flap over Poupart's ligament, the superior surface of the flap remaining upward.

The general conduct of the operative procedure Dr. Wangensteen outlined as follows:

The inguinal incision is made first and the initial portion of the hernioplasty done, *viz.*, suture of the arched fibers of the internal oblique and the conjoined tendon to Poupart's ligament by interrupted mattress sutures of chromic catgut passed from the outer aspect of the inguinal ligament. The outer leaf of the external oblique aponeurosis is then attached to the superior aspect of the conjoined tendon and the arched fibers of the internal oblique by a few interrupted sutures. The fascial flap from the thigh is then designed and swung into the inguinal wound directly over Poupart's ligament by tunneling beneath the skin and subcutaneous fat for the transit of the flap. The inner leaf of the external oblique aponeurosis is pulled medially with retractors and the flap is sutured to the external border of the rectus sheath medially, the pubic tubercle below and attached to the internal oblique and external flap of the external oblique aponeurosis above. The inner leaf of the external oblique is then sutured over the fascial flap, just enough fat being removed from the superior aspect of the flap to permit of satisfactory fascial approximation at the site of suture.

The nature of the support lent to the weakened tissues of the groin in direct inguinal hernias by this method of repair, Dr. Wangensteen stated, is easily demonstrated by having the patient cough (operation under spinal anesthesia) before and after the transfer of the flap. The skin and subcutaneous fat of the thigh wound are sutured and no disability has been experienced by the patients because of failure to close the fascial defect. Muscle hernia does not ensue. A slight fullness persists just beneath the anterior superior spine, necessitated by slight rotation of the flap in swinging it upward.

Dr. Wangensteen felt that the firm substance of this pedicled flap with its own blood and nerve supply preserved, presented distinct advantages over the use of the free fascial strips incorporated in the hernioplastic repair, and believed that large recurrent hernias in the groin, not amenable to repair by other methods, could be satisfactorily mended by this fascial transfer.

DISCUSSION

Dr. Wangensteen was asked whether it was his practise to remove the testis.

Dr. Wangensteen stated it had not been removed in any case except the last one, that of an old man in which a hematoma, developed postoperatively, became

infected and the testis was excised. The hematoma had come from a thick wall hydrocele dealt with at operation.

Dr. Wangensteen was asked if the smooth side of the fascia was turned down in this case.

Dr. Wangensteen replied it was, and stated that this maneuver required slight rotation of the flap which caused some fullness to persist just below the anterior superior spine. One just closed the skin and subcutaneous fat in the thigh wound and no difficulty was experienced by the patients because of the fascial defect.

Dr. Green expressed the appreciation of the members of the Surgical Society for the excellent program which had been presented by the Surgical Staff of the Hospital.

The meeting adjourned.

H. O. McPheeters, M.D., *Secretary.*

ANNUAL MEETING OF THE COUNCIL ON PHARMACY AND CHEMISTRY

The following were among the subjects considered at the annual meeting: The Council instructed the committee in charge of that part of the Intern's Handbook which concerns the Council, to proceed with the preparation of the text for early publication. It was decided that in general the products listed in the chapter on Medicinal Foods in New and Non-official Remedies be transferred to the Committee on Foods. It was decided to hold iodized table salt suitable for use by the public on its own initiative on condition that it is made to contain a safe proportion of iodine and that iodized salt with a higher percentage of iodine be considered to have the status of a drug. It was decided that although claims for Vitamin A as an aid to the establishment of general resistance to infection might be recognized, the evidence does not permit claims for "anti-infective" value in specific conditions. The Council decided that corn plasters and corn cures containing salicylic acid must be held to be therapeutic agents and that their indiscriminate use is not safe. The Council decided to revise the description of Antivenin (Nearctic Crotalidæ) in accord with the work of Jackson. It was decided to continue the policy of considering each liver extract individually, so that each manufacturer might be given opportunity to present evidence for the safety of the intravenous administration of his product. It was decided that an investigation of the present status of bacillus acidophilus therapy be carried out. The Council decided to ask the Bureau of Investigation to give further publicity to the hazards from the use of cinchophen. It was decided to revise the New and Non-official Remedies article "Sulpharsphenamine" to emphasize the dangers and limitations of sulpharsphenamine therapy. (Jour. A. M. A., April 16, 1932, p. 1374.)

THE INTERNATIONAL TREATY CONTROLLING NARCOTIC DRUGS

On March 31 the United States Senate ratified the international treaty for limiting the manufacture of narcotic drugs. The treaty was the result of an international conference held at Geneva in 1931. The treaty should be far reaching in its effect on preventing the smuggling of contraband drugs into this and other countries. The treaty does not weaken or relax existing American measures for the control of the legal use of these drugs, or those for the suppression of their abuses. The treaty deals with two phases: the limitation of the manufacture of narcotic drugs, and the strengthening of measures for their international control and distribution. (Jour. A. M. A., April 16, 1932, p. 1379.)

PROGRESS SECTION

Members are urged to abstract valuable articles which they run across in their reading and send the abstracts to the physicians in charge of the respective sections. In order to avoid duplication it would be well to communicate with one of the section supervisors before the article is abstracted.

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EYE, EAR, NOSE AND THROAT

OTOSCLEROSIS. A CLINICAL ANALYSIS: Dan McKenzie, London (Jour. of Otol. and Laryng., Feb., 1932). The term "otosclerosis" is defended. As applied, the word connotes a symptom group that can be evoked by quite a number of different pathological causes inducing one particular physiological change in the ear. It is a diagnosis that is being more frequently made. Osteoporosis of the labyrinthine capsule occurs frequently without any indication of middle ear inflammation, past or present. Fraser has shown that the same bone changes are also frequently associated with an otitis media, and also that the otosclerosis syndrome may be evoked by scar tissue in the middle ear without any osteoporosis.

The author classifies 622 cases seen in his own practice into three groups. The "primary" group numbers 411 cases. In these there was no history or evidence of otitis media in any form. A "secondary" group of 129 cases included those cases in which the hearing defect was associated with and probably induced by some form of an otitis media. The third clinical division contains the "incipient" cases; in these, suppuration and catarrh being absent, the deafness is trifling though of long standing and uninfluenced by treatment. Of the 622 cases, 82 come under this group.

The author anticipates objections which will arise to such a classification. He defends it by offering a detailed analysis of the clinical findings in each group. A comparison of the various characteristics of one group (age, incidence of onset, sex ratio, results of hearing tests, etc.) with those of each of the other two groups, indicates that there is some basis for this classification.

LAWRENCE R. BOIES, M.D.

A PLEA FOR THE "WINDOW" RESECTION METHOD IN DEALING WITH CERTAIN TYPES OF LARYNGEAL CARCINOMA, WITH A CLINICAL HISTORY OF SEVEN CASES: Norman Patterson, London (Jour. of Otol. and Laryng., Feb., 1932). Seven cases of malignant laryngeal growth too extensive for thyrofissure were operated by resection of a large window made in the thyroid cartilage. In these cases the growth involved the anterior portion of a cord or both cords and in some instances extended into the subglottic area. The advantages of the operation lie in less mutilation, and the fact that the outlook as to voice and respiration may be as good as after laryngofissure.

The cases:

1. Well 9 years after a window resection in 1922. A laryngofissure had been performed in 1918. The growth had involved the anterior third of the right cord without fixing it. There was recurrence at the site of original removal.

2. This patient had a growth involving the anterior half of the left cord with involvement of the commissure and extension onto the right cord. A lung abscess developed post-operatively and the patient succumbed. At postmortem it was found that the tracheal glands were involved by tumor metastasis.

3. Well 5 years. Voice rough but strong. At the operation, in addition to the window resection, a portion of the cricothyroid membrane and the cricoid cartilage was removed. The growth involved the commissure and anterior portion of both cords and extended into the subglottic area. No tube is worn.

4. The malignancy in this case involved the anterior half of the left cord and extended onto the right cord. There was no fixation, but the tumor extended into the subglottic area. At operation the central portion of the cricothyroid membrane was removed in addition, to the window resection. The voice was fair and tracheotomy tube could be dispensed with. The patient died 18 months after operation of a cerebral hemorrhage.

5. At operation, practically all of the left cord was found to be involved, with exception of the posterior end. It was fixed. The whole of the cord and part of the arytenoid was removed and also a portion of the cricothyroid membrane. The patient died of heart failure 3 years and 8 months later.

6. There was involvement of the anterior two-thirds of the left cord to the commissure and extension into the sub-glottic area. The whole of the left cord, the anterior half of the right cord and a portion of the cricoid ring was removed. The voice is fair though rough. No tube required. The patient is well without recurrence 4 years after the operation.

7. The author suggests there is little doubt that this case was not suitable for any procedure except laryngectomy. A large irregular mass involved the anterior two-thirds of the left vocal cord extending into the subglottic area. The patient had been operated on two years previously for a carcinoma of the tongue. Following an extensive window resection, the patient made a good recovery from the operation but could not dispense with his tube. There was recurrence, to which he succumbed 6 months later.

LAWRENCE R. BOIES, M.D.

SURGERY

THE TREATMENT OF FISTULA-IN-ANO BY THE WHITEHEAD TECHNIC. Taken from "Der Chirurg," Volume IV, Number 3, February 1, 1931, Page 97. By Dr. M. Siebner, Stuttgart. This operation consists essentially in the resection of the lower end of the rectum, including the rectal end of the fistula, according to the well-known Whitehead technic for hemorrhoids. Because of the usual location of the external opening, the sphincter does not have any control. The treatment of the intra-sphincteric fistula does not offer the difficulties of cure by minor methods that one experiences in the extra-sphincteric fistula, and it is this latter type which requires often repeated operations, and it is for this latter type that the Whitehead technic is being used by the author. One of the essentials is the preservation of the sphincteric ring. The function of the internal sphincter is more definite than the external sphincter when the external sphincteric action is retained. If the external sphincter is completely divided, the tonus of the autonomic action of the sympathetic and parasympathetic, which supplies the internal sphincter, is lowered and incontinence results.

The usual method of complete excision of old fistulæ with the plastic skin and fat flaps often successfully closes these abnormal openings, provided the internal sphincter has not been functionally disturbed. Because of the extensive scar contraction, recurrences often take place, requiring repeated operations. Thus it occurs, in healing, that the new external opening is usually nearer to the anal margin, as well as in the rectum, and frequently more than one opening exists on the inside. The lowered vitality of the lower rectal mucous membrane justifies the complete excision and the sliding down of healthy mucous membrane to meet healthy skin. Usually the internal openings are quite low down, frequently in the region of the internal sphincter, and thus within a few centimeters of the anal ring. Should the internal opening be exceedingly high, it is wise to use the usual external excision technic without disturbing the external sphincter. If recurrences occur, as above noted, the opening will be much nearer the anal ring, and thus lends itself to the Whitehead technic about to be described.

The technic of this operation is very much like the Whitehead operation for hemorrhoids. First, a careful dilatation of the sphincter is made, and then an incision, surrounding the anal opening at the mucocutaneous junction. The rectal mucous membrane is carefully released from the underlying sphincter until the distance to one to two cm. above the uppermost internal fistulous opening is reached. Immediately surrounding the fistulous opening, inflammatory thickening makes the peeling-off process somewhat tricky, and care must be used to prevent tearing the mucous membrane. The cuff of mucosa and submucosa is then resected, and skin and mucous membrane united similar to the method in the Whitehead hemorrhoid technic. When once the region beyond the sphincter is attained, the whole thickness of the rectum may be included in the excision. If general anesthesia is used, local anesthesia with super-adrenalin is also used to simplify the dilatation, as well as to relax the tissues locally and make them more anemic. The external fistulous opening is either curetted or excised, and, if necessary, a skin fat flap inserted, similar to the usual method.

The author cites several illustrative cases, and recommends this method as especially indicated in cases of recurrence of fistula situated external to the sphincters.

A. E. SOHMER, M.D.,

Mankato Clinic, Mankato, Minnesota.

ROENTGENOLOGY

THE CAVITY IN PULMONARY TUBERCULOSIS: I. (Roentgenologic and Anatomic Study)—Max Pinner, M.D. II. (Genesis and Further Developments)—Max Pinner and Marion E. Parker, M.D. (Amer. Jour. Roentg. and Rad. Ther., Vol. XX, p. 518-526, 1928, and Vol. XXV, p. 455-463, 1931). Pinner has correlated X-ray and autopsy findings of the tuberculous cavities and feels that they form a splendid aid in prognosis and in determining the type of therapy.

He recognizes the occasional healing of cavities spontaneously but says that "all statistical presentations on this topic proved a relative brief average survival period of cavity bearers, and the rarity of closure of cavities without surgical intervention." The majority of cavities are prevented from closing by: (1) Fibrous walls, (2) eccentric tension, (3) stiffness of pleura and mediastinum.

He feels as Ranke does, that at a certain stage of the disease phthisis is a strictly localized destructive process in an otherwise little affected body and warns us that the well nourished non-toxic patient (compensated phthisis) so commonly seen does not necessarily mean a cure in either a clinical or anatomical sense.

The majority of cavities can be classified into one of three types as follows:

TYPE I.—MOTHEATEN AREAS IN INFILTRATION

Anatomy—This is represented by a loss of tissue in an area of tuberculous pneumonia, or heavy infiltration. There is really no wall to the cavity. *X-ray*—Appears as dense infiltration with localized areas of rarefaction usually about the size of a cherry pit. If a large area is involved, there is narrowing of the lung field and the mediastinum is pulled over. *Course*—Small cavities may coalesce and form large cavities (whole lobe). Lesions may clear quite rapidly, but with a large cavity, healing is hopeless even with surgery (including pneumothorax).

TYPE II.—ROUND OR OVAL CAVITIES

Anatomy—The result of a small exudative lesion. The size and shape are due to eccentric tension and fibrosis. The wall is usually a thin layer of fibrosis, sometimes surrounded by infiltration. *X-ray*—The cavities are smooth in outline, usually round and oval. The size varies from 1 to 10 cm. (seldom larger). The density of the ring surrounding the cavity appears either as (1) barely visible, (2) stringy, (3) moderately dense. *Course*—They enlarge or decrease in size very abruptly, or the walls may become greatly thickened, in which case the cavity is transformed into Type III.

TYPE III.—FIBROID, IRREGULAR CAVITIES

Anatomy—Marked pleural thickening, heavy irregular walls, often trabeculations. *X-ray*—Thickened pleura with an area of excavation underlying. *Course*—Pathogenesis is not well understood, probably slow and chronic. These cavities seldom heal spontaneously.

It is felt that it is more important to describe the type of wall surrounding the cavity than it is to describe its location and its size (within limits). Interesting figures are quoted to show the frequency with which closure is brought about by pneumothorax and phrenic nerve operations in Types I and II, and the great difficulty of closure by these same methods in Type III.

F. L. JENNINGS, M.D.

CORRESPONDENCE

DOCTORS AND HARD TIMES

To the Editor:

In December, 1896, as editor of *Northwestern Lancet*, I wrote an editorial that fits so closely conditions today that I think it may be of interest to reproduce parts of it; moreover there may be some encouragement to the despondent in finding that although the slump in the practice of medicine as well as in general business was at least as great thirty-five years ago as it is today, recovery was complete and there have been many prosperous years since.

To quote from the editorial: "That the general depression of business during the past three years should have been attended with a considerable falling off in the practice of the specialist is not to be wondered at, since much of the work done by those who limit their practice is upon chronic affections, which, when first brought under treatment, have in many cases existed in about the same state for a long period of time, and might still be endured for some time longer did the necessity for economy forbid running up a bill for treatment. . . . But what is not so easy to understand is why the business of the general practitioner has fallen off at the same time with and almost to the same degree as that of the specialist. For the general practitioner depends but little upon chronic cases for his practice; his calls are for the most part on account of acute attacks for which a physician must be summoned whether or no without counting the cost. The services of the obstetrician must be had just the same in good times as in bad, and accidents will happen without regard to the ability of the individual to pay the doctor's bill. Indeed, as it is an ill wind that blows no one good, it might be expected that the general practitioner would reap some benefit from the scarcity of money, by having cases come to him for treatment that in better times would incur the larger expense of employing the services of a specialist. In the face of all these reasons to the contrary, the cry arises from all sides that not only the income but the business of the general practitioner has been materially lessened since the panic of 1893."

The editorial then goes on to discuss the various explanations offered by the *Medical Record* and other medical journals to account for the condition just described. These explanations and discussions need not be repeated here, since it is but too apparent that they furnished no remedy that has acted as a preventive; witness conditions today.

Those were bad times indeed in 1893. In addition to the general stagnation of business and the unemployment we see today, the banks generally stopped paying out cash, not only specie but paper money as well. No matter what a depositor's balance was, he could not get cash for his check, unless he could show that an emergency existed like the call to make an unavoidable journey. Technically perhaps a bank that refused to allow a depositor to withdraw his funds could be forced to go into the hands of a receiver, but almost everybody was reasonable enough to accept the situation and not take steps that would have aggravated matters. So for a time all payments were made by checks and but little cash circulated. One member of our profession, now long since gone to his reward, was an exception, and demanded his money of the bank under threat of a receivership; to avoid trouble the bank paid him his balance, some six thousand dollars, but paid it in silver, nearly four hundred pounds in weight, and the doctor was obliged to employ a dray to carry it away.

So take courage, colleagues. This is not the first nor the worst slump in affairs that ever happened, and it will not be the last.

WILLIAM DAVIS, M.D.

St. Paul, May 5, 1932.

BOOK REVIEWS

Books listed here become the property of the Ramsey and Hennepin County Medical libraries when reviewed. Members, however, are urged to write reviews of any or every recent book which may be of interest to physicians.

BOOKS RECEIVED FOR REVIEW

HUMAN STERILIZATION. J. H. Landman, Ph.D., J.D., J.S.D., of the College of the City of New York. 341 pages. Price, $4.00, cloth. New York: The MacMillan Company, 1932.

PRACTICAL TREATMENT OF SKIN DISEASES. Eduard Ahlswede, M.D., formerly Assistant Physician, University Skin Department, Eppendorf Hospital, Hamburg, etc. 798 pages. Illus. Price, $12.00, cloth. New York: Paul B. Hoeber, Inc., 1932.

DISEASES OF THE CORONARY ARTERIES. Don C. Sutton, M.D., Assistant Prof. Med., Northwestern University, and Harold Lueth, M.D., formerly Instructor of Physiology, Northwestern University. Price, $5.00, cloth. Saint Louis: C. V. Mosby Co., 1932.

SODOMY'S BEST LIBERATOR. Marcus Rosenberg. 16 pages. Price, paper cover, 75c. Bronx, N. Y.: Marcus Rosenberg, 1932.

SURGERY, WITH SPECIAL REFERENCE TO PODIATRY. Edward Adams, M.D., Professor of Surgery, First Institute of Podiatry, New York. 480 pages. Price, cloth ?. New York: International Journal of Surgery, 1932.

BODY MECHANICS. White House Conference on Child Health and Protection. $1.50. Century Company, 1932.

The present status of the study of postural changes (body mechanics) and the attention given to them by medical and educational authorities was surveyed. In this study, 75 per cent of the youth of the United States are said to have imperfect posture, which is frequently associated with functional scoliosis and with pronation of the feet. The relation of proper body mechanics to general physical well-being seems to be definite.

The description of a large-scale study on a number of school children is given. A considerable number of exercises devoted to improper posture are detailed.

THOMAS MYERS, M.D.

HEALTH PROTECTION FOR THE SCHOOL CHILD. White House Conference on Child Health and Protection. $2.50. Century Company, 1931.

This is a study of pre-school children, of whom 146,000 lived in cities and 37,000 in rural districts. An effort was made to determine to what extent they had been given physical examinations, dental examinations and immunization against smallpox and diphtheria. While the survey is necessarily inadequate in view of the comparatively small number of children studied, it reveals, nevertheless, to how small a degree these health measures have been applied to children of pre-school age among families of all economic levels.

It would appear that preventive medicine among pre-school children is only in its infancy and that the more thorough attention given to infants and to school children loses much of its value in view of the lack of preventive care between the ages of two and five.

THOMAS MYERS, M.D.

PSYCHOLOGY AND PSYCHIATRY IN PEDIATRICS: THE PROBLEM. White House Conference on Child Health and Protection. $1.50. Century Company, 1932.

This is not a text on the subject, but rather a consideration of the relation of behavior problems in childhood to the physician and educator.

The necessity for clinics operated by physicians trained in both pediatrics and child psychology, and manned by child psychologists, is emphasized as often the best means of dealing with behavior disturbances. If the general practitioner and pediatrician acquire psychiatric intelligence they can render effective service which frequently renders formal organizations unnecessary. The need for accurately correlating pediatrics and psychiatry in approaching these problems is described. The organic structure of the behavior clinic is discussed.

THOMAS MYERS, M.D.

THE PRINCIPAL NERVOUS PATHWAYS. Andrew Theodore Rasmussen, Ph.D. (Professor of Neurology, Department of Anatomy, University of Minnesota, Medical School). 73 pages. Price $2.50 New York: The Macmillan Company, 1932.

On the title page one finds these words, "The Principal Nervous Pathways—Neurological Charts and Schemas with Explanatory Notes." This statement describes, in brief, the contents of this book, but in no way indicates its value. Here is a monograph most excellently and ingeniously arranged, giving a splendid elucidation of a most difficult subject.

While intended, primarily, for the use of students, it will obviously be of immeasurable value to practicing physicians as well, and should be of interest to men in every specialty.

As Herrick has said, "It is priceless."

WALTER P. GARDNER.

MEDICINE IN VIRGINIA IN THE EIGHTEENTH CENTURY: Wyndham B. Blanton, M.D., Richmond, Garrett and Massie, Inc., 1931.

This is the second volume of the History of Medicine in Virginia, prepared by a committee of the Medical Society of Virginia, of which Doctor Blanton is chairman. Several state histories of medicine have appeared in recent years, sponsored by their respective state medical societies, and we believe other state associations, including our own, have histories in process of preparation.

It is a great pleasure to own and read this book, and in the opinion of the reviewer it sets a standard for state medical histories that up to the present has not been approached, either in exhaustiveness of research or in literary qualities. We are also of the opinion that future authors of state histories of medicine will have difficulty in equalling it. Settlement of our western states is so recent (our own goes back but eighty years), compared to that of Virginia, that we have not the background to make our histories of interest, perhaps, to other than local residents. This volume will,

however, appeal to any historically-minded physician and student of social conditions, regardless of place of residence. Apparently the compilers examined all sources of information possible and the text of 420 pages is supplemented with six pages of bibliography which bears this out. An adequate index is also furnished. In addition, the typography and make-up of the volume is well done and pleasing to the eye. Space forbids our making a summary of the chapters and contents.

We wish to congratulate the Medical Society of Virginia. Fortunate, indeed, was the choice of Doctor Blanton, of the committee in charge, and of the publishers who produced this volume.

J. M. ARMSTRONG, M. D.

THE STORY OF MEDICINE. Victor Robinson, M.D. Published by Albert and Charles Boni, N. Y. 1931. Price: $5.00.

As the title suggests, this history of medicine is written in a rather popular way; this fact makes it an easy source of education in the field of medical history, not only for the physician and the medical student, but also for the interested layman.

The "Story of Medicine" could hardly have found an author better fitted for such a work. Dr. Robinson, whose writings in the medico-historical field are very popular on account of their splendid style, has done his best in this work. The book comprises the entire history of medicine, starting with prehistoric times and ending with the beginning of the 20th century. The last chapter—outside of the chronological order—gives a summary of American medicine.

An appendix of twenty-one pages containing bibliographical notes arranged according to the chapters and within the chapters according to the material is most welcome to the student of medical history who desires to read up in greater detail the one or other phase of medicine. Every chapter is worked out with the same care and with the same interest. The author lays particular stress on painting the historical, social and scientific background for each chapter and its different phases. This he has accomplished in a masterly way; even if he occasionally seems to spend too much space on this "background" it is never tiresome, thanks to the lively description and style, gems of which may be found on almost every page. The characterizations of personalities are concise and very well done. The author has a certain gift of dealing with a situation or a person to bring out the salient points in a few well chosen words.

Only few omissions—they may have been intentional—can be found in this otherwise complete history. Nothing is mentioned of ancient Syrian, Jewish or Chinese medicine, and men like Oribasius, Aëtius and Paulus Æginita deserve a little more than to be mentioned in passing. Ketham Fasciculus medicinæ does not appear in the text, although almost half a page is devoted to its biographical notes; Eustachius and others are not mentioned. We must admit, however, that this is not supposed to be a reference book.

There are plenty of quotations from medical masters of all times and Dr. Robinson is to be congratulated for his fine judgment in the choice of them. The amount of chronological data is sufficient to be satisfactory and yet small enough so as not to tire the reader. There are no illustrations—probably in order to keep the price within the means of the average man—with the exception of the jacket, which has a reproduction of the centerpiece of an ancient Greek bowl, showing a scene from Homer's Iliad: Achilles bandaging Parroclus.

Robinson has done what he promised in the title; he has really placed before us the entire history of our profession, with all the epoch-making inventions and discoveries, all the different systems that either accelerated or retarded the progress of medicine, and all the follies that fill many a dark page in this "story." Between the lines one can read the delight the author experienced when writing this work, not dead history, but a live "story of medicine."

R. ROSENTHAL, M.D.

THE WAY OF HEALTH INSURANCE. A. M. Simons, member of the Research Staff of the Committee on the Study of Dental Practice of the American Dental Association; and Nathan Sinai, D.P.H., Associate Professor of Public Health, University of Michigan, and adviser to the Committee on the Study of Dental Practice. 216 pages, cloth bound, $2.00. University of Chicago Press: April 19, 1932.

After two years' investigation of eight leading European system of compulsory health insurance, Mr. Simons and Dr. Sinai present their report in the book, "The Way of Health Insurance," recently published by the University of Chicago Press. It will serve as a warning to the physicians and dentists of this country that if they do not take a hand in formulating the policies of any insurance system that may be installed in the United States, the professions will find themselves in conflict with its practices when it is too late. The authors cite the case in France, when after the insurance law had passed in the Chamber of Deputies, the physicians and dentists united, tardily, in an attack on it, held up its enforcement for two years, and virtually rewrote it.

The conflict between the professions and the laws, the authors point out, is due to the fact that health insurance always has been, and probably always will be, more "poverty" insurance, or "poor relief," than medical relief. It has its origin in a social need. Its cash benefits are a fundamental part of the system, and take the place of the pay envelope when sickness interrupts earning power. Social workers are largely responsible for the agitation for health insurance and for the formulation of its regulations. Politics also plays an important part. The authors state that the German system, which was the first, was originated by Bismarck in 1883 as a political move to get the support of the Social Democrats. Politicians under any government consider health insurance a palliative for social revolt. The pressure for social insurance becomes acute in times of depression, and history shows that attempts at legislative relief always follow economic depressions. This was true in Europe. It is true in America today. Economists say that 20 to 30 per cent of the sick do not at present receive adequate medical care. Health insurance bills are now before the legislatures of several states.

Another group that takes an active hand in formulating health insurance laws is the commercial insurance companies. This is natural, as they have the organization for the conduct of the business, and experience. In suggesting the error of allowing health insurance laws and regulations to be formulated by social workers, politicians, and commercial insurance companies, the authors make no reflection upon the sincerity or integrity of these agencies, but merely point out that since they know little of medicine and professional practice, only a minor consideration is given to these phases which affect the practitioner and the patient so vitally.

Their most detailed investigation was of the systems in Great Britain, Germany, and France, but a great deal of specific information is given about the systems of Denmark, Sweden, Norway, Austria, Belgium, Hungary, Switzerland, and other countries.

Germany has 44,000,000 insured, according to their statistics. Eighty-five per cent of all physicians give part or full time to insurance practice; a small group has a wealthy, non-insured practice; the rest starve,

or practically so, especially the recent graduate, who usually has to wait five to seven years to get into insurance practice. The insured get both medical and dental service free, and cash benefits.

Great Britain has about 16,000,000 insured (the families of the insured are not covered as they are in Germany). Any registered physician or dentist can require the insurance committee to put his name on the "panel" list, from which the insured makes his choice. This panel list is posted in a public place. The British system differs from the German in the further respect that specialist services are not included, and medical service is, as far as praticable, divorced from the social management that determines whether cash benefits shall be paid. The authors are decidedly of the opinion that separation of the medical service from the administration of cash benefits results in a more efficient and honest operation of the system.

In France—the system which the physicians and dentists practically rewrote after a two-year fight—the relation between practitioner and patient is virtually the same as in private practice. The patient has free choice of practitioner, the practitioner fixes his own fee, and the insured presents the practitioner's bill to the insurance organization and is reimbursed with a percentage of it—usually 80 per cent.

Broadly viewing insurance in action in numerous countries, the authors make three important points: First, notwithstanding the many faults and deficiencies of the various systems, no country that has ever tried compulsory health insurance would be willing to go back to pre-insurance days; second, insurance practice is generally conceded to have increased the average professional income; third, it has not apparently improved public health, nor diminished death rates or time lost in industry on account of sickness.

"One thing at least should be plain," they say, "and that is that he who says, without qualification, 'I am against health insurance,' or 'I am for health insurance,' is speaking out of the greath depths of ignorance or great heights of prejudice. There is not one health insurance, but many, and each has a multitude of features, some good and some bad. It is more than within the bounds of probability that this country will follow the example of so many others and try some system of health insurance. Whether that system will bring all the evils along with what is good in previous systems depends upon how wisely those who write its terms pick and choose among the already ample experience of other nations."

This study was financed by the American College of Dentists in coöperation with the research projects of the Committee on the Study of Dental Practice of the American Dental Association, which in turn is coöperating with the Committee on the Costs of Medical Care.

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